

JUVENILE PERIODONTITIS: PREVALENCE AND CLINICAL FINDINGS  
IN A YOUNG MILITARY POPULATION

AD-A173 948

THIS FILE COPY

ROBERT BOUSQUET

86 11 4 115

REPORT DOCUMENTATION PAGE		'READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER AFIT/CI/NR 86- 192T	2. GOVT ACCESSION NO. <i>AD-811933779</i>	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Juvenile Periodontitis: Prevalence and Clinical Findings in a Young Military Population	5. TYPE OF REPORT & PERIOD COVERED THESIS/DISSERTATION/	
7. AUTHOR(s) Robert Bousquett	6. PERFORMING ORG. REPORT NUMBER	
9. PERFORMING ORGANIZATION NAME AND ADDRESS AFIT STUDENT AT: The University of Texas	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
11. CONTROLLING OFFICE NAME AND ADDRESS	12. REPORT DATE 1986	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	13. NUMBER OF PAGES 170	
16. DISTRIBUTION STATEMENT (of this Report)	15. SECURITY CLASS. (of this report) UNCLASS	
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)	<i>Lynn E. Wolaver 21st X</i>	
18. SUPPLEMENTARY NOTES APPROVED FOR PUBLIC RELEASE: IAW AFR 190-1	Lynn E. WOLAVER Dean for Research and Professional Development AFIT/NR	
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)	DTIC ELECTED NOV 5 1986 S A	
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)	ATTACHED ...	

JUVENILE PERIODONTITIS: PREVALENCE AND CLINICAL FINDINGS  
IN A YOUNG MILITARY POPULATION

A

THESIS

Presented to the Faculty of  
The University of Texas Graduate School of Biomedical Sciences  
At San Antonio  
in Partial Fulfillment  
of the Requirements  
for the Degree of  
MASTER OF SCIENCE

By

Robert Bousquet, A.A., D.M.D.

San Antonio, Texas

June 1985

DTIC

NOV 5 1986

This document has been approved  
for public release and sale; its  
distribution is unlimited.

[PII Redacted]

## JUVENILE PERIODONTITIS: PREVALENCE AND CLINICAL FINDINGS IN A YOUNG MILITARY POPULATION

Robert Bousquet

APPROVED:

Thomas Wallop

Supervising Professor

Donald E. Cummings

Elay Waze

~~Jerry Linn  
Lin Prints~~



27 June, 1986  
Date

Date

APPROVED:

~~A. J. Guarino, Ph.D.~~  
~~Dear~~

Dear [Name]

Dear

Accident No.	Per
A-1	
B-1	
C-1	
D-1	
M-1	
Rv	
Priority	
Emergency Codes	
Avail. Only or	
Dist	Special
A-1	

This report is for retention per Ms.  
June DeSouza, AFIT/NR

DEDICATION

I dedicate this Thesis to my wife, Sandra, and daughter, Jennifer, who have so graciously (most of the time) given up their family life so that this Thesis might be completed.

I have yet to find the man, however exalted his station, who did not do better work and put forth greater effort under a spirit of approval than under a spirit of criticism.

Charles Schwab

#### ACKNOWLEDGEMENTS

I am grateful to my mentor, Doctor Thomas Waldrop, for his encouragement and guidance. I would also like to thank Doctors Olaf Alvarez, Barbara Boyan, Carol Brownstein, Donald Cummings and William W. Hallmon for their time and efforts in reviewing my manuscripts. Doctor Paul Infeld helped considerably in screening the patients for my study. Bruce Pearson provided considerable assistance in the formidable statistics. Mrs. Betty J. Bouford was invaluable in the editing and typing of this manuscript.

I would also like to acknowledge Doctors Donald Moskowicz and Michael Mills for their encouragement and for allowing the time to complete this project.

JUVENILE PERIODONTITIS: PREVALENCE AND CLINICAL  
FINDINGS IN A YOUNG MILITARY POPULATION

Robert Bousquet, M.S.

The University of Texas Graduate School of Biomedical Sciences  
at San Antonio

Supervising Professor: Thomas C. Waldrop

→ The purpose of this study was twofold. One, to determine the prevalence, geographic distribution, sex ratio and racial distribution of juvenile periodontitis in a young, U.S. military population. And two, to document the clinical characteristics of juvenile periodontitis in these patients.

The panoramic radiographs of 16,658 U.S. Air Force basic trainees were screened for alveolar bone loss.

Forty-four patients were identified as having juvenile → *juv.*

periodontitis. Of these, 36 were available for clinical examination. Patients were clinically evaluated for gingival inflammation (GI), plaque (PII), calculus (CI), probing depths, bleeding upon probing, mobility and balancing interferences. A dental history, medical history and clinical laboratory procedures including fasting blood glucose, Antinuclear Antibody and CBC with differential were accomplished. The patients' age, sex, race and geographical area of enlistment were documented. A full mouth series of radiographs were taken and interpreted for type of bone loss, amount of bone loss (Schei technique), evidence of furcation invasion, and calculus.

Patients were divided into groups based upon the location and number of affected teeth. These groups were defined as: localized juvenile periodontitis (first molar and incisor only), intermediate juvenile periodontitis (< 14 teeth) and generalized juvenile periodontitis (> 14 teeth).

The overall prevalence of juvenile periodontitis was .26%. The prevalence of localized juvenile periodontitis was .03%, for intermediate juvenile periodontitis .08% and for generalized juvenile periodontitis .15%. There was no difference in the prevalence of juvenile periodontitis between 7 geographic areas of the United States.

There was a female to male prevalence ratio of 2.32/1, a Black to Caucasian prevalence ratio of 16.13/1, a Black male

to Caucasian male prevalence ratio of 20.67/1 and a Black female to Caucasian female ratio of 6.68/1. No significant difference was found between the Black female to Black male prevalence ratio or Caucasian female to Caucasian male prevalence ratio.

The most frequently and severely affected teeth were maxillary and mandibular first molars, followed by incisors. The least frequently involved and the less severely affected teeth were the cuspids. There was no difference in the extent of bone loss between maxillary and mandibular arches. Fifty percent of the patients showed symmetry or mirror image type bone loss when right and left sides of the mouth were compared. Both the percentage of teeth affected and the percentage of the population affected increased with age. There was twice as much bone loss on affected teeth in patients with generalized juvenile periodontitis patients compared to patients with intermediate juvenile periodontitis. The majority of the patients exhibited horizontal type bone loss. However, the percentage of angular bone loss was higher in the intermediate juvenile periodontitis cases than in the patients with generalized juvenile periodontitis.

The affected teeth in both the intermediate and generalized juvenile periodontitis groups demonstrated more plaque, inflammation and bleeding on probing than unaffected teeth. Furcation invasion was noted radiographically on 20%

of affected molars. No mobility was found on 91.5% of the affected teeth. Only 1.7% of the teeth in this study demonstrated balancing interferences.

This study discounts the hypothesis that there is a geographic difference in the prevalence of juvenile periodontitis within the United States. It also discounts the hypothesis that occlusal traumatism is a primary etiologic factor in juvenile periodontitis.

This study supports the concepts that juvenile periodontitis is more prevalent in Blacks than Caucasians and that it is more prevalent in females than males. It also supports the concept that first molars are the most frequently and severely affected teeth in juvenile periodontitis and that involvement may start as localized molar-incisor involvement and proceed to involve additional teeth with time. It also supports the hypothesis that plaque, inflammation and bleeding on probing are associated with juvenile periodontitis lesions.

## TABLE OF CONTENTS

	Page
Title .....	i
Approval .....	ii
Dedication .....	iii
Acknowledgements .....	iv
Abstract .....	v
Table of Contents .....	ix
List of Tables .....	xii
List of Figures .....	xv
I. INTRODUCTION .....	1
II. LITERATURE REVIEW .....	4
A. Nomenclature .....	4
B. Definition .....	6
C. Localized Versus Generalized .....	9
D. Generalized Disease .....	11
E. Prevalence .....	13
F. Age .....	16
G. Sex .....	18
H. Geographic .....	21
I. Pattern of Bone Loss .....	21
J. Mobility .....	23
K. Inflammation, Plaque and Bleeding on Probing ..	24
L. Calculus .....	26

III.	METHODS AND MATERIALS .....	28
A.	Patient Selection .....	28
B.	Data Collection .....	28
1.	Alveolar bone loss .....	29
a.	Category of bone loss .....	29
b.	Pattern of bone loss for individual teeth .....	29
c.	Other radiographic findings .....	30
d.	The distribution of alveolar involvement according to individual teeth .....	30
2.	Gingival inflammation .....	30
3.	Plaque .....	31
4.	Calculus .....	32
5.	Tooth mobility .....	33
6.	Clinical probing depths .....	33
7.	Bleeding on probing .....	34
8.	Occlusion .....	34
9.	Photographs .....	34
C.	Definitions .....	35
D.	Analysis of Data .....	36
IV.	RESULTS .....	37
A.	Population, Sample and Prevalence .....	37
B.	Sex and Race .....	40
C.	Radiographic Groups .....	42
D.	Clinical Groups .....	48
E.	Combined Groups .....	48
F.	Effect of Age .....	54

G.	Plaque Index, Gingival Index, Mean Age and Calculus Index .....	54
H.	Alveolar Bone Loss .....	64
I.	Bleeding on Probing .....	78
J.	Mobility .....	81
K.	Furcation Invasion .....	81
L.	Balancing Interferences .....	85
V.	DISCUSSION .....	88
A.	Population, Sample and Prevalence .....	88
B.	Sex and Race .....	90
C.	Radiographic, Clinical and Combined Type Patients .....	92
D.	Effect of Age .....	93
E.	Plaque Index and Gingival Index.....	94
F.	Alveolar Bone Loss .....	95
G.	Bleeding on Probing .....	97
H.	Mobility .....	98
I.	Furcation Invasion .....	99
J.	Balancing Interferences .....	99
K.	Limitations .....	100
VI.	SUMMARY .....	101
APPENDIX		
	Appendix A (Consent Form) .....	103
	Appendix B (Geographic Data) .....	106
	Appendix C (Patient Documentation Form) .....	121
	Literature Cited .....	158
	Vita .....	169

## LIST OF TABLES

	Page
Table 1      Prevalence of JP .....	14
Table 2      Racial Prevalence of JP .....	17
Table 3      Age of JP Patients .....	19
Table 4      Female/Male Prevalence of JP .....	20
Table 5      Population by Age, Sex and Race .....	38
Table 6      Sample by Age, Sex, Race and Prevalence ....	39
Table 7      Comparison of Prevalence by geographic Area to Overall Prevalence .....	41
Table 8      Comparison of Prevalence Between Sex and Race Groups .....	43
Table 9      Distribution of Radiographic Bone Loss Types by Sex and Race .....	44
Table 10     Distribution of Clinical Attachment Loss Types by Sex and Race .....	49
Table 11     Distribution of Clinical Attachment Loss Types and/or Radiographic Bone Loss Types (Combined Types) by Sex and Race .....	53
Table 12     Distribution of Affected and Unaffected Teeth by Age Groups .....	57
Table 13     Sample Combined Type II by Age, Sex, Race and Prevalence .....	58
Table 14     Sample Combined Type III by Age, Sex, Race and Prevalence .....	59
Table 15     Plaque Index by Surface (Mesial, Facial, Lingual, Distal) on Affected and Unaffected Sites in Combined Type II Patients .....	60

Table 16	Plaque Index by Surface (Mesial, Facial, Lingual, Distal) on Affected and Unaffected Sites in Combined Type III Patients .....	62
Table 17	Gingival Index by Surface (Mesial, Facial Lingual, Distal) on Affected and Unaffected Sites in Combined Type II Patients .....	63
Table 18	Gingival Index by Surface (Mesial, Facial, Lingual, Distal) on Affected and Unaffected Sites in Combined Type III Patients .....	65
Table 19	Comparison of Age, Gingival Index, Plaque Index and Calculus Index Between Combined Type II and Combined Type III Patients .....	66
Table 20	Extent of Root Involvement on Mesial and Distal Surfaces in Unaffected and Affected Sites, Combined Type II Patients .....	67
Table 21	Comparison of Average Percentage of Bone Loss on Mesial and Distal Surfaces of Combined Type II Patients. Maxillary Versus Mandibular .....	70
Table 22	Angular Versus Horizontal Bone Loss (Mesial and Distal Surfaces) on Affected and Unaffected Teeth in Combined Type II Patients .....	71
Table 23	Extent of Root Involvement on Mesial and Distal Surfaces in Unaffected and Affected Sites, Combined Type III Patients .....	72
Table 24	Comparison of Average Percentage of Bone Loss on Mesial and Distal Surfaces of Combined Type III Patients. Maxillary Versus Mandibular .....	75
Table 25	Angular Versus Horizontal Bone Loss (Mesial and Distal Surfaces) on Affected and Unaffected Teeth in Combined Type III Patients .....	76

Table 26	Comparison of Average Percentage of Bone Loss on Mesial and Distal Surfaces. Combined Group II Versus Combined Group III .....	77
Table 27	Bleeding on Probing by Surface (Mesial, Facial, Lingual, Distal) in Affected and Unaffected Sites in Combined Type II Patients .....	79
Table 28	Bleeding on Probing by Surface (Mesial, Facial, Lingual, Distal) in Affected and Unaffected Sites in Combined Type III Patients .....	80
Table 29	Distribution of Mobility in Combined Type II Patients by Unaffected and Affected Teeth .....	82
Table 30	Distribution of Mobility in Combined Type III Patients by Unaffected and Affected Teeth .....	83
Table 31	Distribution of Radiographic Evidence of Furcation Invasion (FI) in Combined Type II Patients by Affected and Unaffected Molar Teeth .....	84
Table 32	Distribution of Radiographic Evidence of Furcation Invasion (FI) in Combined Type III Patients by Affected and Unaffected Molar Teeth .....	86
Table 33	Distribution of Balancing Interferences on Unaffected and Affected Teeth .....	87

## LIST OF FIGURES

	Page
Figure 1      The Frequency or Percentage of Teeth Affected in Radiographic Group I .....	45
Figure 2      The Frequency or Percentage of Teeth Affected in Radiographic Group II .....	46
Figure 3      The Frequency or Percentage of Teeth Affected in Radiographic Group III .....	47
Figure 4      The Frequency or Percentage of Teeth Affected in Clinical Group I .....	50
Figure 5      The Frequency or Percentage of Teeth Affected in Clinical Group II .....	51
Figure 6      The Frequency or Percentage of Teeth Affected in Clinical Group III .....	52
Figure 7      The Frequency or Percentage of Teeth Affected in Combined Group II .....	55
Figure 8      The Frequency or Percentage of Teeth Affected in Combined Group III .....	56
Figure 9      The Average Percentage of Bone Loss (Severity) by Tooth and Surface in Combined Type II Patients .....	69
Figure 10     The Average Percentage of Bone Loss (Severity) by Tooth and Surface in Combined Type III Patients .....	74

## I. INTRODUCTION

"Juvenile Periodontitis" (Periodontosis) has been classically defined as: "A disease of the periodontium occurring in an otherwise healthy adolescent, which is characterized by a rapid loss of the alveolar bone about more than one tooth of the permanent dentition. The amount of destruction manifested is not commensurate with the amounts of local irritants present." (Baer, 1971)

Estimates of the prevalence of juvenile periodontitis vary from 0 to 17.6%. (Barnett et al., 1982; Blankenstein et al., 1978; Dawson, 1948; Marshall-Day and Shourie, 1949; Marshall-Day et al., 1955; Emslie, 1966; Kaslick and Chasens, 1968; Lacy and Brasher, 1977; Loe et al., 1978; MacGregor, 1977; Ramfjord, 1961; Rao, 1968; Russell, 1971; Saxen, 1980) The variance in prevalence between studies is due to the difference in populations sampled and screening methods used. Today juvenile periodontitis refers to a distinct disease entity occurring after puberty and characterized by bone loss involving primarily the first molars and incisors. Baer (1971) originally described two expressions of the disease, a localized form involving first molars and incisors and a generalized form involving the entire dentition. Based on recent bacteriological and immunologic studies, generalized disease in adolescents has been hypothesized to be a distinct disease entity separate from localized disease. (Slots, 1976,

Newman, 1981; Ranney et al., 1981) Page and Schroeder (1982) have defined generalized disease in adolescents and young adults as "Rapidly Progressive Periodontitis," the prevalence of which has not been reported. However, it has also been reported that there is increased tooth involvement with age. (Hormand and Frandsen, 1979; Ranney, 1981b; Fine, 1984; Burmeister, 1984; Saxen and Murtomaa, 1985) On the basis of this evidence, it has been hypothesized that juvenile periodontitis begins as localized first molar-incisor involvement and progresses to generalized involvement with age.

The overall female to male ratio for juvenile periodontitis has been reported to be 2:1. (Barnett et al., 1982; Marshall-Day and Shourie, 1949; Emslie, 1966; Saxen, 1980; Melnick et al., 1976) When race has been considered, the Black population has been shown to have an overall higher prevalence than Caucasians. (Hew et al., 1979) It has also been suggested that juvenile periodontitis may be more common in the southwestern United States. (Kaslick and Chasens, 1968; Lacy and Brasher, 1977) The female to male ratio, racial prevalence and geographic distribution of generalized disease have not been determined.

United States Air Force military recruits between the age of 18-27 represent a cross-section of young adults from the United States. The purpose of this study was to screen this population and answer the following questions:

1. What is the prevalence of juvenile periodontitis in this group, using well defined clinical and radiographic parameters?
2. What is the female to male ratio of juvenile periodontitis?
3. What is the geographic prevalence of juvenile periodontitis?
4. What are the clinical findings in patients who are identified as having juvenile periodontitis?
5. Does tooth involvement (quantity and severity) increase with age in patients with juvenile periodontitis?
6. Does localized and generalized juvenile periodontitis appear to be distinct diseases or a progression of the same disease?

## II. LITERATURE REVIEW

### A. Nomenclature

Various terms have been used to describe alveolar bone loss in adolescents and young adults. This entity was first introduced in 1923 by Gottlieb as "Diffuse Atrophy of Alveolar Bone." He described a case of severe alveolar bone loss in a 22-year-old man in which a loss in functional arrangement of the periodontal ligament was present without signs of gingival inflammation. Gottlieb (1928) later introduced the term "Deep Cementopathia" and suggested that the cause of the disorder was due to a defect in cementum formation.

Gottlieb's concept of cementopathia was challenged by Wannenmacher in 1938, when he introduced the term "Parodontitis Marginalis Progressiva." This was the first report to suggest that the bone loss occurred primarily in the first molar and incisor areas and to associate clinical signs of inflammation with the bone loss.

In 1940, Thoma and Goldman introduced the term "Parodontosis." These authors felt that the first signs of the disease were migration and loosening of the maxillary incisors, occurring primarily during the early and middle periods of life. Miller et al. (1941) subsequently reported on 35 cases of the disease in young individuals ranging in age from 14-30 years and introduced the term "Precocious Advanced

Alveolar Bone Destruction." Orban and Weinmann, in 1942, concluded that the disease was degenerative rather than inflammatory in nature and proposed that it be called "Periodontosis." Butler (1969) felt that the term "Juvenile Periodontitis" was more descriptive. He thought the pattern of bone loss observed was a result of inflammation and not the result of a degenerative process. In addition to the latter terms, other terms that have been used to describe this entity include: "Acute Juvenile Periodontitis" (Chaput, 1967), "Periodontosis with Periodontitis" (Kaslick and Chasens, 1968), "Localized Generalized Periodontosis" (Baer, 1971), "Periodontitis Complex" (Box, 1972), "Localized Periodontosis" (Fourel, 1972), "Gottlieb Syndrome" (Fourel, 1974), "Precocious Periodontitis" (Sugarman and Sugarman, 1977), "Destructive Juvenile Periodontitis" (Waerhaug, 1977), and "Localized Juvenile Periodontitis" (Manouchehr-Pour and Bissada, 1979).

In the literature of the 1970's the terms juvenile periodontitis and periodontosis were being used interchangeably. Baer and Kaslick (1978) argued for the term "Periodontosis," stating that it did not mean a degenerative condition, but only an abnormal or diseased condition of the periodontium. A case for using the term "Juvenile Periodontitis" was made by Manson and Lehner (1974). The authors felt that the disease was not degenerative in nature, and felt that the term "Juvenile Periodontitis" emphasized an

inflammatory disease process confined to young people that was different from adult type periodontitis. The term "Juvenile Periodontitis" was also preferred by Waerhaug (1976, 1977), who observed that root surfaces of extracted, affected teeth from young individuals with this disease always exhibited a thin layer of microbial plaque. In 1977, Sugarman and Sugarman recommended that the term "Periodontosis" be dropped from use. Today, the most commonly used terms to describe this entity are "Juvenile Periodontitis" and "Localized Juvenile Periodontitis." (Waldrop, 1984) For the purposes of this study, the term "Juvenile Periodontitis" will be used.

#### B. Definition

Early investigators (Gottlieb, 1923, 1928; Orban and Weinmann, 1942) considered juvenile periodontitis to be a degenerative disease process. Wannemacher (1938) was the first to describe molar-incisor involvement and to associate inflammation with bone loss. He reported that, although the gingival tissues appeared clinically pink and healthy, bleeding on probing was present. Orban and Weinmann (1942) were the first to define the disease as occurring in young individuals 14-30 years of age.

The Nomenclature Committee of the American Academy of Periodontology (1950) defined "Periodontosis" (juvenile periodontitis) as a "degenerative non-inflammatory destruction of the periodontium originating in one or more of the

periodontal structures, characterized by migration and loosening of the teeth in the presence or absence of secondary epithelial proliferation and pocket formation or secondary gingival disease."

In their review of the literature, Yount and Belting (1956) described two stages of juvenile periodontitis. They felt stage one was degenerative, characterized by pocket formation, bone loss and gingiva that appeared normal, while stage two was inflammatory, associated with subgingival calculus formation. Prichard (1965) suggested that the early clinical signs of juvenile periodontitis (loosening and migration of teeth, angular bone loss and normal appearing gingiva) were the result of occlusal traumatism and that pocket formation could not occur without inflammation.

Prichard suggested that "Periodontosis" (juvenile periodontitis) was not a degenerative disease. Later Baer (1971) classically defined "Periodontosis" (juvenile periodontitis) as "a disease of the periodontium occurring in an otherwise healthy adolescent, which is characterized by a rapid loss of alveolar bone about more than one tooth of the permanent dentition. There are two basic forms in which it occurs. In one form, the teeth affected are the incisors and the first molars; in the other, more generalized form, most of the dentition can be affected. The amount of destruction manifested is not commensurate with the amounts of local irritants."

Contrary to Baer's definition of "Periodontosis" (juvenile periodontitis), the presence of microbial plaque associated with juvenile periodontitis lesions has been well documented by numerous authors: (Waerhaug, 1976, 1977b; Allen and Brady, 1978; Newman et al., 1976, 1977; Listgarten, 1976; Slots, 1976, 1980). A chronic inflammatory infiltrate, consisting of predominantly plasma cells in the gingival tissues from juvenile periodontitis lesions, has also been shown. (Tenebaum, 1950; Liljenberg and Lindhe, 1980; Waldrop et al., 1981; Gillett and Johnson, 1982) In addition, juvenile periodontitis has been shown to respond to conventional therapy. (Waerhaug, 1977a; Hoge and Kirkham, 1981; Popper, 1981; Evian et al., 1982; Lindhe, 1982, 1984; Jaffin, 1984)

This evidence supports the concept that juvenile periodontitis is not a degenerative process. It also suggests that the etiology of juvenile periodontitis is, at least in part, a result of the presence of microbial plaque and inflammatory in nature. Therefore, today juvenile periodontitis is best defined as an inflammatory disease of the periodontium, with onset at puberty, occurring in an otherwise systemically healthy adolescent or young adult, which is manifested clinically and radiographically by destructive disease about more than one tooth of the permanent dentition.

### C. Localized Versus Generalized

The term juvenile periodontitis has been used to describe localized and generalized forms of bone loss in young individuals. Wannenmacher (1938) was the first to describe juvenile periodontitis as a disease confined to bone loss involving the permanent first molars and incisors. Fourel (1972) argued that molar-incisor bone loss represented the only true type of juvenile periodontitis. Baer (1971) described two forms of the disease.

The more generalized form of juvenile periodontitis has not been seen as frequently in adolescents as the localized form. Manson and Lehner (1974) examined 22 patients aged 15-22 years with bone loss and found only 2 cases of diffuse involvement. Hormand and Frandsen (1979) reported that generalized involvement was not found in 12-18 year olds, but 35% of 26-32 year olds with bone loss had generalized involvement. They speculated that localized involvement preceded involvement of other teeth. Other authors have also suggested that localized involvement may progress to a more generalized form. (Saxen, 1980b; Burmeister et al., 1984; Saxen and Murtomaa, 1985) In addition, Vandesteen et al. (1981) reported a case of a 23-year-old female who presented with generalized involvement, but radiographs from age 15 were presented which documented the presence of localized involvement prior to the presence of generalized involvement. In contrast, Page and Schroeder (1982) have documented

cases of generalized involvement which were not preceded by localized involvement.

A specific flora has been shown to be associated with localized lesions. Specifically, Actinobacillus actinomycetemcomitans has been demonstrated by Tanner et al. (1979); Zambon et al. (1982) and Savitt and Socransky (1984) and Capnocytophaga by Newman et al. (1976); Listgarten (1976) and Slots (1976). In addition, reports have demonstrated elevated serum antibody titers to Actinobacillus actinomycetemcomitans in patients with localized involvement. (Genco et al., 1980a; Murray and Genco, 1980; Morton et al., 1981 and Ebersole et al., 1980a, 1980b, 1982)

In contrast, patients with generalized involvement have not been shown to have elevated serum antibody titers to the flora specific for localized involvement. (Moore et al., 1982 and Vincent et al., 1983) Page and Schroeder (1982) and Waldrop (1984) have proposed that the terms "Juvenile Periodontitis" and/or "Localized Juvenile Periodontitis" be limited to those clinical cases with only first molar and/or incisor alveolar bone loss. For the purposes of this paper, the term localized juvenile periodontitis will be used to describe those cases with only first molar-incisor alveolar bone loss.

#### D. Generalized Disease

Generalized bone loss in young individuals has also been defined by a variety of terms. Baer (1971) called this form of the disease "Generalized Periodontosis."

Hormand and Frandsen (1979) defined the disease process based on patterns of bone loss as follows: Type I - First molar and incisor involvement only; Type II - First molar and/or incisor involvement and a few additionally involved teeth, but < 14 teeth involved; Type III - Generalized involvement,  $\geq$  14 teeth involved. The authors thought the disease started as Type I and progressed to Type III with age. Van Dyke et al. (1980) used the term "Generalized Juvenile Periodontitis" to describe patients with severe alveolar bone loss involving  $>$  14 teeth with no clear pattern of localization of bone loss and younger than 30 years of age.

Ranney et al. (1981a, 1981b) called generalized disease in adolescents "Severe Periodontitis" and defined it as attachment loss  $\geq$  5 mm on 8 or more teeth with at least 3 not being first molars or incisors. Patients had to be less than 30 years of age and could have no known signs, symptoms or history of systemic disease. In addition, patients were characterized by having clinical signs of gingival inflammation. The authors felt that "Severe Periodontitis" could be synonymous with "Generalized Juvenile Periodontitis."

Harvey (1981a, 1981b) divided "Periodontosis" into 3 classes on the basis of which teeth were affected. He defined the classes as follows: Class I - Molar/incisor involvement; Class II - Molar/incisor and cuspid/first bicuspid involvement; Class III - Generalized involvement.

Recently, Page and Schroeder (1982) coined the phrase "Rapidly Progressive Periodontitis" to define rapid, generalized bone loss occurring at any age after puberty, but normally between 20-35 years of age. Patients had acutely inflamed gingiva and most had a neutrophil and/or monocyte defect. By definition, patients may or may not have had a history of "Localized Juvenile Periodontitis" and systemic diseases. Based on the above criteria, Page et al. (1983) reported on 7 cases of "Rapidly Progressive Periodontitis" in which 83% of the cases had a neutrophil and/or monocyte defect.

Burmeister et al. (1984) preferred the term "Severe Periodontitis" to describe patients with a "generalized pattern of severe destruction with attachment loss of at least 5 mm on 8 or more teeth, at least 3 of which are not first molar or incisors." Greenstein (1985), in his recent review article, used the definition of Page and Schroeder (1982) and the term "Rapidly Progressive Periodontitis" to describe generalized involvement in individuals between puberty and 30 years of age.

Based on current knowledge, it appears that a cross-sectional sampling of young individuals between the ages of puberty and 30 years of age would reveal two distinct patterns of bone loss; one being a localized first molar/incisor pattern and the other a generalized involvement  $\geq$  14 teeth. It also seems that an intermediate pattern involving more teeth than first molar/incisors but < 14 teeth can be seen. Evidence from cross-sectional samples (Hormand and Frandsen, 1979 and Saxen and Murtomaa, 1985) seems to indicate that the localized form may progress to involve more teeth with increasing age. For the purposes of this study, generalized involvement  $\geq$  14 teeth will be referred to as generalized juvenile periodontitis. Intermediate juvenile periodontitis will be used to refer to that form of the disease involving more teeth than first molars and incisors, but less than 14 teeth. The term rapidly progressive periodontitis should be reserved for that group of patients with generalized alveolar bone loss who show no signs of previous localized juvenile periodontitis.

#### E. Prevalence

Estimates of the prevalence of juvenile periodontitis in young individuals have varied from 0-17.6% (Table 1). This difference in reported prevalence may reflect differences in (Waldrop, 1984):

1. Criteria used for diagnosis.

TABLE 1

## PREVALENCE OF JUVENILE PERIODONTITIS

<u>STUDY</u>	<u>AGE</u>	<u>SIZE</u>	<u>LOCATION/POPULATION</u>	<u>%</u>
Dawson (1948)	15-55	944	Egypt	5.6
Marshall-Day and Shourie (1949)	9-16	-	Bombay	17.6
Ramfjord (1961)	11-17	1,676	Bombay	0
Basu-Dutta (1962)	12-17	-	Calcutta	5
Miglani and Sharma (1965)	-	-	Madras	0.1
Emslie (1966)	5-20	300	Nigeria	5/300
	5-20	995	Sudan	3/995
Waerhaug (1967)	13-60	10,000	Ceylon	0
Kaslick and Chasens (1968)	16-26	3,896	Army Recruits	0.15
Rao and Tewani (1968)	15-25	1,200	Bombay	6.8
Glauser and Humphreys (1971)	-	2,050	Navajo Indians	14/2050
Lacy and Brasher (1977)	-	3,235	U.S. Military	0.4
Hew and Killoy (1979)	18-22	22,000	Air Force Recruits	0.25
Saxen (1980b)	16	8,096	Norwegian	0.1
Hoover et al. (1981)	15-16	2,813	Danish	0.1
Gjermo et al. (1984)	13-16	304	Brazil	3.7
Hansen et al. (1984)	15	2,409	Norwegian	0.5

2. Variation in diagnostic technique.
3. Age group examined.
4. Sex.
5. Geographic differences.
6. Socioeconomic group.
7. Indices used.
8. Primary versus permanent teeth.

Kaslick and Chasens (1968) randomly sampled (every other man) 7,646 Army recruits at Fort Polk, Louisiana. The authors used mobility as an initial screening test and reported a prevalence of 0.15%. The authors considered this figure to be low since their initial screening probably detected only advanced cases in which mobility was a clinical feature.

Lacy and Brasher (1978) examined 3,235 panoramic radiographs from Army recruits at Fort Dix, New Jersey, and clinically examined suspected cases to confirm their diagnosis. The authors reported a prevalence of 0.40%. Hew and Killoy (1979) examined 22,000 U.S. Air Force recruits at Lackland AFB, Texas, and reported an overall prevalence of 0.255%. In summation, the prevalence of juvenile periodontitis in U.S. Military recruits appears to be between 0.15% and 0.40%.

Less information is available on the extent of generalized bone loss in adolescents and young adults. Manson and Lehner (1974) found 2 cases of generalized involvement

among 22 patients aged 15-22 years. Hormand and Frandsen (1970) studied 156 patients with juvenile periodontitis and reported that generalized involvement was not found in 12-18 year olds, but 35% of 26-32 year olds with bone loss had generalized involvement. To date, no studies have reported on the prevalence of localized, intermediate or generalized periodontitis in a large sample population.

Juvenile periodontitis has been reported in most racial groups. Several studies have suggested an increased prevalence in Blacks as compared to Caucasians (Table 2). Hew and Killoy (1979), in their study in a young military population, reported a prevalence of 0.410% in Blacks and 0.198% in Caucasians. Burmeister et al. (1984) thought that "age," when analyzed either as a categorical or as a continuous variable, caused any relationship to race in juvenile periodontitis patients to disappear.

In a nonepidemiological study, Burmeister et al. (1984) reported an equal involvement in Blacks and Caucasians who were involved with "Severe Periodontitis." In summation, data suggests an increased prevalence of juvenile periodontitis in Blacks compared to Caucasians, with 2:1 more Blacks being affected than Caucasians.

#### F. AGE

The age of onset of juvenile periodontitis has been defined as circumpubertal. (Baer, 1971) The upper age limit

TABLE 2

## RACIAL PREVALENCE OF JUVENILE PERIODONTITIS

<u>STUDY</u>	<u>BLACKS</u>	<u>CAUCASIANS</u>
Russell (1957)	3.2%	3.0%
Kaslick and Chasens (1968)	2/241	4/3,656
Manson and Lehner (1974)	10/22	6/22
Hew and Killoy (1979)	0.41%	0.19%
Johnson et al. (1980)	9/10	1/10
Burmeister et al. (1984)	3.1/1 ratio	

is more difficult to define, with age limitation varying among studies (Table 3). Most authors use 22 years as the upper age limit; however, several studies have included patients up to 30 years of age.

Studies on generalized bone loss in young people have included patients ranging in age from puberty to 35 years of age. (Page and Schroeder, 1982) Ranney (1981b) included patients less than 30 years of age and Burmeister et al. (1984) included patients 11-30 years of age. The upper age limit for this population study group was 27 years.

#### G. SEX

Juvenile periodontitis has been more frequently observed in females than males (Table 4). In the only study to report sex ratios in a cross-sectional military population, aged 18-22 years, Hew and Killoy (1979) reported no significant difference in female to male ratio overall, within Blacks, or within Caucasians. In contrast, Hormand and Frandsen (1979) found a female to male ratio of 5.3/1 in patients 12-18 years of age, compared to 26-32 years of age in which the ratio was 1.5/1. This decrease in the female to male ratio with age was also observed by Gjermo et al. (1984). The authors suggested that because puberty occurs earlier in females, juvenile periodontitis may manifest earlier and lead to a higher prevalence in females in younger age groups.

TABLE 3

## AGE OF JUVENILE PERIODONTITIS PATIENTS

<u>STUDY</u>	<u>AGE</u>
Manson and Lehner (1974)	14-21
Slots (1976)	16-24
Levine et al. (1979)	12-28
Hormand and Frandsen (1980)	12-25
Liljenberg and Lindhe (1980)	14-18
Saxen (1980)	13-30
Listgarten et al. (1981)	12-23
Gebhard et al. (1982)	14-20
Burmeister et al. (1984)	10-28

TABLE 4

## FEMALE/MALE PREVALENCE OF JUVENILE PERIODONTITIS

<u>STUDY</u>	<u>FEMALE</u>	<u>MALE</u>
Miller et al. (1941)	10	1
Marshall-Day and Shourie (1949)	Higher	
Tenenbaum et al. (1950)	Higher	
Seidler et al. (1950)	10	1
Benjamin and Baer (1967)	3	1
Rao and Tewani (1968)	Higher	
Baer and Benjamin (1974)	3	1
Manson and Lehner (1974)	Higher	
Newman et al. (1976)	1	1
Melnick et al. (1976)	2	1
Manson (1977)	3	1
Hew and Killoy (1978)	1.05	1
Hormand and Frandsen (1979)	2.5	1
Saxen (1980)	5	3
Burmeister et al. (1984)	1.9	1

Studies looking at the female to male ratio of generalized juvenile periodontitis are limited. In one study, Burmeister et al. (1984) has shown a higher prevalence in females than males, by a ratio of 2/1.

#### H. Geographic

Several authors have speculated on a geographic difference in the prevalence of juvenile periodontitis. Dawson (1948) found "Periodontosis" to be more prevalent in upper Egypt than lower Egypt. Kaslick and Chasens (1969), in a study of U.S. Army recruits, found all of their cases of juvenile periodontitis to be from the Southwest area of the United States. Rao and Tewani (1968) found a geographic variance in the distribution of juvenile periodontitis in India. Baer (1971) and Baer and Benjamin (1974) felt that the differences in prevalence reported in the literature for juvenile periodontitis might be a true reflection of geographic differences in prevalence. Lacy and Brasher (1977), in a study of U.S. military recruits, also thought the prevalence of juvenile periodontitis might be higher in the Southwest, since 9 of their 13 patients with juvenile periodontitis were from this area.

#### I. Pattern of Bone Loss

Wannenmacher (1938) was the first to describe juvenile periodontitis as an entity characterized by localized

permanent first molar and incisor bone loss. This pattern of bone loss has subsequently been described by many authors. (Miller, 1941; Kaslick and Chasens, 1978; Baer, 1971; Baer and Benjamin, 1974; Hormand and Frandsen, 1979; Newman, 1981; Burmeister et al., 1984) The classic first molar radiographic bone loss pattern has been described as being vertical or arc like, with bone loss extending from the distal of the second premolar to the mesial of the second molar. (Yount, 1956; Baer, 1971; Baer and Benjamin, 1974; Manouchehr-Pour and Bissada, 1979)

In addition, bone loss in juvenile periodontitis has been described as being symmetrical or mirror image in pattern. (Kaslick and Chasens, 1968; Baer, 1971; Baer and Benjamin, 1974; Manson, 1977; Hormand and Frandsen, 1979; Newman, 1981; Page and Schroeder, 1982; Burmeister et al., 1984)

Studies also suggest that there is increased tooth involvement with age. Hormand and Frandsen (1979) looked at 3 age groups, 12-18, 19-25 and 26-32 years of age, and 3 types of bone loss, Type I - Molar/incisor, Type II - Molar/incisor and some additional teeth, but < 14 teeth, and Type III - Generalized involvement  $\geq$  14 teeth. They found that the number of involved teeth increased from 5.3 teeth in the youngest group to 11.6 teeth in the oldest age group. They also found that the frequency of Type I involvement decreased from 55% in the youngest group to 7% in the oldest age group.

In contrast, the frequency of Type II involvement was about the same in all age groups, and the frequency of Type III involvement increased from 0 in the youngest group to 35% in the oldest age group. An increase in tooth involvement with age has been supported by other authors. (Ranney, 1981b; Fine, 1984; Burmeister, 1984; Saxen and Murtomaa, 1985)

The radiographic picture of generalized disease in adolescents or young adults is limited. In one study, the pattern of bone loss was found to be symmetrical in pattern, with the most severe bone loss occurring in the molar/incisor area. (Burmeister, 1984) In contrast, Page et al. (1983) have stated that there is no distinct pattern associated with generalized bone loss (rapidly progressive periodontitis) in young persons.

#### J. Mobility

Early investigators (Gottlieb, 1923; Thoma and Goldman, 1937, 1940; Tenenbaum, 1950) felt that the first signs of juvenile periodontitis were loosening and wandering of the teeth. Prichard (1965) stated that juvenile periodontitis did not exist as a separate disease entity and felt that the mobility and migration of teeth found in these patients could be accounted for by traumatic occlusion. In addition, Prichard felt that bone loss and pocket formation did not occur until inflammation was present. Mobility has

been used as a screening test for juvenile periodontitis. (Kaslick and Chasens, 1968) Newman, in 1981, suggested that mobility is a late finding in the disease process following extensive bone loss.

K. Inflammation, Plaque and Bleeding on Probing

Early authors (Gottlieb, 1923; Thoma and Goldman, 1940; Tenenbaum, 1950) described the gingiva in juvenile periodontitis as appearing normal, with little or no inflammation being present. Baer (1971) and Baer and Benjamin (1974) stated that plaque and calculus were present in cases of "Periodontosis," but not in amounts commensurate with the amount of destruction present. Manson (1973) also observed that there were frequently no clinical signs of gingival inflammation or bleeding associated with affected sites in juvenile periodontitis patients. In addition, these patients had low plaque scores. Other authors have also reported that the amount of local factors and inflammation present is not commensurate with the amount of destruction seen in these patients. (Manouchehr-Pour, 1979; Page and Schroeder, 1982; Cogen, 1984)

In contrast, Wannenmacher (1938) described inflammation and bleeding on probing as early signs of the disease. Russell (1967) thought that cases of juvenile periodontitis were always associated with inflammation and local irritants. In 1968, Prichard suggested that the bone

loss seen in these patients was a direct result of local factors. Microbial plaque has been demonstrated to be present on affected teeth in juvenile periodontitis patients. Waerhaug (1976, 1977a, 1977b) observed a thin (20-200  $\mu$ ) layer of plaque .2 to 1.1 mm from the junctional epithelium to be always present on teeth associated with juvenile periodontitis lesions. In addition, Sugarman and Sugarman (1971) felt poor oral hygiene and subsequent microbial plaque accumulation were the primary etiologic factors in the disease.

Recently, Burmeister et al. (1984) have shown that affected sites in juvenile periodontitis patients have twice the amount of plaque (PLI) as unaffected sites in the same patients. In addition, the authors showed a higher Gingival Index and Bleeding Index for affected sites in juvenile periodontitis patients compared to unaffected sites in the same patients.

In patients who have been described with generalized juvenile periodontitis or rapidly progressive periodontitis, authors agree that there appears to be an increase in inflammation, plaque and bleeding on probing in these patients compared to localized juvenile periodontitis patients. This has been shown by Ranney et al. (1981a), Page and Schroeder (1982), Page et al. (1983), and Burmeister et al. (1984).

#### L. Calculus

Calculus has been described as being seen infrequently in juvenile periodontitis patients. Kaslick and Chasens (1968) looked at calculus patterns on teeth extracted from juvenile periodontitis patients. In the majority of cases, supragingival and marginal subgingival calculus was present. In contrast, two thirds of the teeth evaluated showed little or no deep subgingival calculus. The authors found a negative correlation between deep subgingival calculus and the extent of bone loss in these patients.

Waerhaug (1976, 1977b) found that, although plaque was always present on extracted teeth associated with juvenile periodontitis lesions, calculus was rarely found. Manouchehr-Pour and Bissada (1979), in their review of the literature, concluded that gross subgingival calculus was uncommon in juvenile periodontitis patients. Similarly, Liljenberg and Lindhe (1980) found roots of affected teeth with juvenile periodontitis patients to be free of calculus. Lindskog and Blomlof (1983) examined four first molars, from four different patients with juvenile periodontitis, utilizing scanning electron microscopy, and found no visible subgingival calculus to be present on any of the root surfaces examined.

Cogen et al. (1984), in two case reports, observed that, while calculus, microbial plaque and gingival inflammation were present, the amounts were not consistent with the amount of alveolar bone destruction seen.

Vandesteen et al. (1984) examined six siblings with juvenile periodontitis and noted significant amounts of coronal plaque and calculus on affected teeth. However, they did not examine for the presence of subgingival plaque or calculus. To date, there have been no studies addressing the presence or absence of calculus in patients with generalized disease.

### III. METHODS AND MATERIALS

#### A. Patient Selection

For a 3-month period, the panoramic radiographs were screened (Davies et al., 1977) for all personnel entering the Air Force at Lackland AFB, San Antonio, Texas. Those persons whose panoramic radiographs showed evidence of vertical or horizontal alveolar bone loss were invited to participate in the study. All screenings of radiographs were performed by one dentist whose primary job is screening panoramic radiographs for pathology. All participants were required to sign an informed consent prior to being included in the study. (Appendix A) The treatment and care of all patients complied with Air Force Regulation 169-6 and Medical Center Regulation 169-9.

#### B. Data Collection

Patients participating in the study were clinically evaluated for alveolar bone loss, gingival inflammation, supragingival plaque, calculus, clinical probing depths, bleeding upon probing and balancing interferences. A dental history, medical history and clinical laboratory procedures including fasting blood glucose, Antinuclear Antibody and CBC with differential were completed on each patient participating in the study, to rule out trauma or systemic disease. In addition, the patient's race, sex, age and geographical

location of enlistment were documented. A full mouth series of intraoral periapical radiographs, consisting of 18 films, were taken on each patient. All data collection was documented on a prepared patient documentation form. (Appendices C-1 thru C-36) In addition, the following parameters were assessed:

1. Alveolar Bone Loss: Alveolar bone loss was assessed from full mouth periapical radiographs. Radiographs were taken using a long cone paralleling technique and a Rinn XCP film holder. A Fixott-Everett grid was used with each radiograph. The amount of radiographic bone loss was measured by the technique of Schei. (Schei et al., 1959)

a. Category of bone loss: (Hormand and Frandsen, 1979) A tooth was defined as having alveolar bone loss if either the mesial or distal surface exhibited  $\geq 20\%$  bone loss as measured by the technique of Schei.

Type I: First molars and/or incisors ( $\leq 12$  teeth)

Type II: First molars, incisors, and a few additional teeth ( $< 14$  teeth)

Type III: Generalized involvement ( $> 14$  teeth)

b. Pattern of bone loss for individual teeth:

(1) Horizontal versus angular type of bone loss.

Mesial and distal surfaces were evaluated separately.

(2) Extent of the root involved. Mesial and distal surfaces were evaluated separately.

Type A: < 20% loss

Type B: 20-40% loss

Type C: 50-70% loss

Type D: 80-100% loss

c. Other radiographic findings:

(1) The presence or absence of radiographic involvement of furcations.

(2) The presence or absence of radiographic evidence of calculus. Mesial and distal surfaces were evaluated independently.

d. The distribution of alveolar involvement according to individual teeth:

(1) Maxillary versus mandibular arch involvement.

(2) The most frequently affected teeth.

(3) The least frequently affected teeth.

(4) Bilateral versus unilateral involvement (mirror effect).

2. Gingival Inflammation: Clinical gingival inflammation was assessed using the Gingival Index (GI) of Loe and Silness (1963).

Each of the four gingival areas of each tooth (mesial, distal, facial, lingual) were scored 0-3 using the following criteria:

0 = Normal gingiva.

1 = Mild inflammation - slight change in color,  
slight edema. No bleeding on probing.

2 = Moderate inflammation - redness, edema and  
glazing. Bleeding on probing.

3 = Severe inflammation - marked redness and edema.  
Ulceration. Tendency to spontaneous bleeding.

The scores were totaled and divided by number of  
surfaces scored to provide a GI for the patient.

3. Plaque: The amount of plaque accumulation was  
assessed according to the Plaque Index (PII) of Silness  
and Loe (1964).

Each of the four areas of the tooth (mesial, distal,  
facial, lingual) were scored 0-3 using the following  
criteria:

0 = No plaque in the gingival area.

1 = A film of plaque adhering to the free gingival  
margin and adjacent area of the tooth. The plaque  
may only be recognized by running a probe across the  
tooth surface.

2 = Moderate accumulation of soft deposits within  
the gingival pocket, on the gingival margin and/or  
adjacent tooth surface, which can be seen by the  
naked eye.

3 = Abundance of soft matter within the gingival pocket and/or on the gingival margin and adjacent tooth surface.

The scores were totaled and divided by the number of surfaces scored to provide a PI for the patient.

4. Calculus: The presence or absence of calculus was assessed according to the Oral Hygiene Index (O.H.I.) of Greene and Vermillion (1960).

Surfaces were scored 0-3 using the following criteria:

0 = No calculus present.

1 = Supragingival calculus covering not more than one third of the exposed tooth surface.

2 = Supragingival calculus covering more than one third but not more than two thirds of the exposed tooth surface, or the presence of individual flecks of subgingival calculus around the cervical portion of the tooth, or both.

3 = Supragingival calculus covering more than two thirds of the exposed tooth surface, or a continuous heavy band of subgingival calculus around the cervical portion of the tooth, or both.

Each arch was divided into segments comprised of the six anterior teeth, with the remaining teeth included in posterior segments.

Individual scores were derived for the buccal and lingual surfaces in recognition of the differences in hygiene status that may exist between these surfaces.

The index is based on the fraction of the tooth surface area covered by debris or calculus; therefore, only fully erupted permanent teeth were scored.

The 2 debris scores assigned to a segment are based on the buccal and lingual surface with the greatest surface area covered by debris. For calculation of O.H.I., both scores in a segment need not come from the same tooth.

5. Tooth Mobility: Tooth mobility was assessed according to the technique developed by Miller (1938).

Teeth were assigned a mobility score 0-3 according to the following criteria:

0 = No mobility other than normal.

1 = First sign of mobility greater than normal.

2 = Movement of one millimeter in any direction.

3 = Movement of more than one millimeter and/or rotation or depression of the tooth.

6. Clinical Probing Depths: Probing depths were assessed by utilizing a spring-loaded, pressure-sensitive probe (University of Washington probe with a University of Michigan -0 type probe head) at 25 ponds of force. All probing measurements were taken from the gingival margin. For mesial and distal measurements, the probe

was aligned parallel to the long axis of the tooth against the interproximal contact and angled no more than 5° from the vertical axis, to end below the contact point. Six measurements were taken on each tooth:

1. Mesiobuccal, 2. Buccal, 3. Distobuccal,
4. Distolingual, 5. Lingual, 6. Mesiolingual.

a. Type of attachment loss: Attachment loss was defined as  $\geq$  5.0 mm of probing depth. (Vandesteen et al., 1984)

Type I: First molars and/or incisors  
( $\leq$  12 teeth)

Type II: First molars, incisors and a few additional teeth ( $<$  14 teeth)

Type III: Generalized involvement ( $\geq$  14 teeth)

7. Bleeding Upon Probing: Bleeding upon probing was assessed according to the technique of Muhlemann and Mazor (1958). The gingival sulcus was gently probed, and the presence or absence of bleeding was documented.

8. Occlusion: An occlusal examination consisted of an evaluation for the presence or absence of balancing interferences.

9. Photographs: The clinical appearance of gingival tissue was documented with 35 mm slides.

C. Definitions

Radiographic Affected Site =  $\geq$  20% bone loss on mesial or distal tooth surfaces.

Radiographic Affected Tooth =  $\geq$  20% bone loss on mesial and/or distal tooth surfaces.

Radiographic Type A Bone Loss = 0-10% bone loss.

Radiographic Type B Bone Loss = 20-40% bone loss.

Radiographic Type C Bone Loss = 50-70% bone loss.

Radiographic Type D Bone Loss = 80-100% bone loss.

Radiographic Type I Patient = Radiographically affected teeth include first molars and/or incisors only.

Radiographic Type II Patient = Radiographically affected teeth include first molars and/or incisors and a few additional teeth, but  $< 14$  teeth.

Radiographic Type III Patient = Radiographically affected teeth include  $\geq 14$  teeth.

Clinical Affected Site =  $\geq 5$  mm of clinical probing depth on mesial, facial, lingual or distal tooth surfaces.

Clinical Affected Tooth =  $\geq 5$  mm of clinical probing depth on mesial and/or facial and/or lingual and/or distal surfaces.

Clinical Type I Patient = Clinically affected teeth include first molars and/or incisors only.

Clinical Type II Patient = Clinically affected teeth include first molars and/or incisors and a few additional teeth, but  $< 14$  teeth.

Clinical Type III Patient = Clinically affected teeth include > 14 teeth.

Combined Affected Site = > 20% bone loss and/or > 5 mm of clinical probing depth on mesial, facial, lingual or distal tooth surfaces.

Combined Affected Tooth = > 20% bone loss and/or > 5 mm of clinical probing depth on mesial and/or facial and/or lingual and/or distal surfaces.

Combined Type I Patient = Combined affected teeth include first molars and/or incisors only.

Combined Type II Patient = Combined affected teeth include first molars and/or incisors and a few additional teeth. but < 14 teeth.

Combined Type III Patient = Combined affected teeth include > 14 teeth.

#### D. Analysis of Data

Means were compared using the Student's t test. All other data were compared using the Chi-square test, except for tables with cells equal to zero where the Fisher Exact Test (2 Tail) was used.

These analyses were done on a DEC VAX-11/780 Computer using the BMDP statistical software package, University of California, 1981. A 0.05 level of significance was used.

#### IV. RESULTS

##### A. Population, Sample and Prevalence

The panoramic radiographs of 16,658 U.S. Air Force basic trainees were examined for evidence of alveolar bone loss. The population (Table 5) was predominantly Caucasian (81.1%), male (85.7%) and less than 22 years of age (80.0%). A total of 51 basic trainees showed evidence of alveolar bone loss and were invited to participate in this study. Following a clinical examination and a full mouth radiographic series, patients were either eliminated from the study or assigned to a Clinical, Radiographic and Combined Type group. Eight patients were unavailable for clinical examination but, on the basis of panoramic radiographs, were assigned to a Radiographic and Combined Type group. The remaining 43 patients were clinically examined, and 7 of these were eliminated for having either little or no alveolar bone loss or isolated areas of alveolar bone loss with a history of trauma to the area. The sample consisted of 44 patients. On the basis of a routine physical examination, prior to entry to active duty, and the results of laboratory screening tests, all patients were judged to be healthy.

The sample (Table 6) included 44 patients, consisting of 31 Blacks, 11 Caucasians and 2 other. Thirty-one patients were male and 12 were female. A total of 23 patients were

TABLE 5

## POPULATION BY AGE, SEX AND RACE

		<u>AGE</u>	<u>17-21</u>	<u>%</u>	<u>22-27</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SEX</u>	<u>RACE</u>							
	Caucasian	9508	(57.1)		2202	(13.2)	11710	(70.3)
Male	Black	1532	( 9.2)		404	( 2.4)	1936	(11.6)
	Other	485	( 2.9)		153	( 0.9)	638	( 3.8)
Total Male		11525	(69.2)		2759	(16.6)	14284	(85.7)
	Caucasian	1383	( 8.3)		416	( 2.5)	1799	(10.8)
Female	Black	338	( 2.0)		138	( 0.8)	476	( 2.9)
	Other	73	( 0.4)		26	( 0.2)	99	( 0.6)
Total Female		1794	(10.8)		580	( 3.5)	2374	(14.3)
Total Caucasian		10891	(65.4)		2618	(15.7)	13509	(81.1)
Total Black		1870	(11.2)		542	( 3.3)	2412	(14.5)
Total Other		558	( 3.3)		179	( 1.1)	736	( 4.4)
Total		13319	(80.0)		3339	(20.0)	16658	(100)

Sample Size n = 16658

TABLE 6  
SAMPLE BY AGE, SEX, RACE AND PREVALENCE

<u>SEX</u>	<u>RACE</u>	<u>AGE</u>	<u>17-21 PREVALENCE</u>	<u>22-27 PREVALENCE</u>	<u>TOTAL</u>	<u>PREVALENCE</u>	
Male	Caucasian	2	( .02)	5	( .23)	7	( .06)
	Black	13	( .84)	11	( .72)	24	(1.24)
	Other	0	(0)	1	( .65)	1	( .16)
Total Male		15	( .13)	17	( .62)	32	( .22)
Female	Caucasian	4	( .29)	0	(0)	4	( .22)
	Black	3	( .89)	4	(2.90)	7	(1.47)
	Other	1	(1.36)	0	(0)	1	(1.01)
Total Female		8	( .45)	4	( .70)	12	( .51)
Total Caucasian		6	( .06)	5	( .19)	11	( .08)
Total Black		16	( .86)	15	(2.77)	31	(1.29)
Total Other		1	( .18)	1	( .56)	2	( .27)
Total		23	( .17)	21	( .63)	44	( .26)

Sample Size n = 44

Includes 8 patients not clinically examined.  
Panorex Only.

between 17 and 21 years of age, and 21 were between 22 and 27 years of age. The overall prevalence of juvenile periodontitis in the sample was .26%. Five patients were judged to have localized juvenile periodontitis or a prevalence of .03%. Fourteen patients were considered to have intermediate juvenile periodontitis or a prevalence of .08%. Twenty-five were judged to have generalized juvenile periodontitis or a prevalence of .15%. Three patients were identified who demonstrated generalized horizontal bone loss without more severe involvement of first molars or incisors. These patients may have had rapidly progressive periodontitis (prevalence - .02%). When considering regional differences within the sample, a comparison of the prevalence from 7 geographic areas within the United States (Table 7) revealed no significant difference between the areas.

#### B. Sex and Race

A comparison between sex and race groups in this study (Table 6) revealed the following: a female to male ratio of 1/2.7, a Black to Caucasian ratio of 2.8/1, a Black male to Caucasian male ratio of 3.4/1, a Black female to Caucasian female ratio of 1.75/1; a Black female to Black male ratio of 1/3.4 and a Caucasian female to Caucasian male ratio of 1/1.75.

TABLE 7

## COMPARISON OF PREVALENCE BY GEOGRAPHIC AREA TO OVERALL PREVALENCE

Overall Prevalence	.26			
Geographic Area 1 Prevalence	.27	Chi square = .03	p = .85	
Geographic Area 2 Prevalence	.33	Chi square = .38	p = .53	
Geographic Area 3 Prevalence	.25	Chi square = .01	p = .97	
Geographic Area 4 Prevalence	0	Fisher Exact Test (2 Tail)	p = .14	
Geographic Area 5 Prevalence	.10	Chi square = 1.54	p = .21	
Geographic Area 6 Prevalence	.38	Chi square = .49	p = .48	
Geographic Area 7 Prevalence	.27	Chi square = .23	p = .63	

A comparison of the prevalence for sex and race groups in this study (Table 8) revealed the following: a female to male ratio 2.32/1 ( $p = .02$ ); a Black to Caucasian ratio of 16.13/1 ( $p < .0001$ ); a Black male to Caucasian male ratio of 20.67/1 ( $p < .0001$ ); a Black female to Caucasian female ratio of 6.68/1 ( $p = .002$ ); a Black female to Black male ratio of 1.19/1 (no significant difference) and a Caucasian female to Caucasian male ratio of 3.67/1 (no significant difference).

#### C. Radiographic Groups

On the basis of the radiographic examination, the patients were placed into Radiographic Groups according to which teeth were involved (Table 9). Radiographic Group I included 7 patients, of which only 2 were available for a clinical examination. The percentage of teeth affected in this group is shown in Figure 1. Radiographic Group II included 20 patients, 17 of which were available for a clinical examination. The percentage of teeth affected in this group is shown in Figure 2. The most frequently affected teeth in this group were the first molars and incisors. The least frequently affected teeth were the cuspids. Radiographic Group III included 17 patients, all of which were available for a clinical examination. The percentage of teeth affected in this group is shown in Figure 3. Again, the most

TABLE 8

## COMPARISON OF PREVALENCE BETWEEN SEX AND RACE GROUPS

	<u>MALE</u>	VS	<u>FEMALE</u>
Prevalence	.22		.51
	Chi square = 5.10		p = .02
	<u>BLACK</u>	VS	<u>CAUCASIAN</u>
Prevalence	1.29		.08
	Chi square = 108.2		p < .0001
	<u>BLACK MALE</u>	VS	<u>CAUCASIAN MALE</u>
Prevalence	1.24		.06
	Chi square = 96.9		p < .0001
	<u>BLACK FEMALE</u>	VS	<u>CAUCASIAN FEMALE</u>
Prevalence	1.47		.22
	Chi square = 9.73		p = .002
	<u>BLACK MALE</u>	VS	<u>BLACK FEMALE</u>
Prevalence	1.24		1.47
	Chi square = .03		p = .86
	<u>CAUCASIAN MALE</u>	VS	<u>CAUCASIAN FEMALE</u>
Prevalence	.06		.22
	Chi square = 3.26		p = .07

TABLE 9

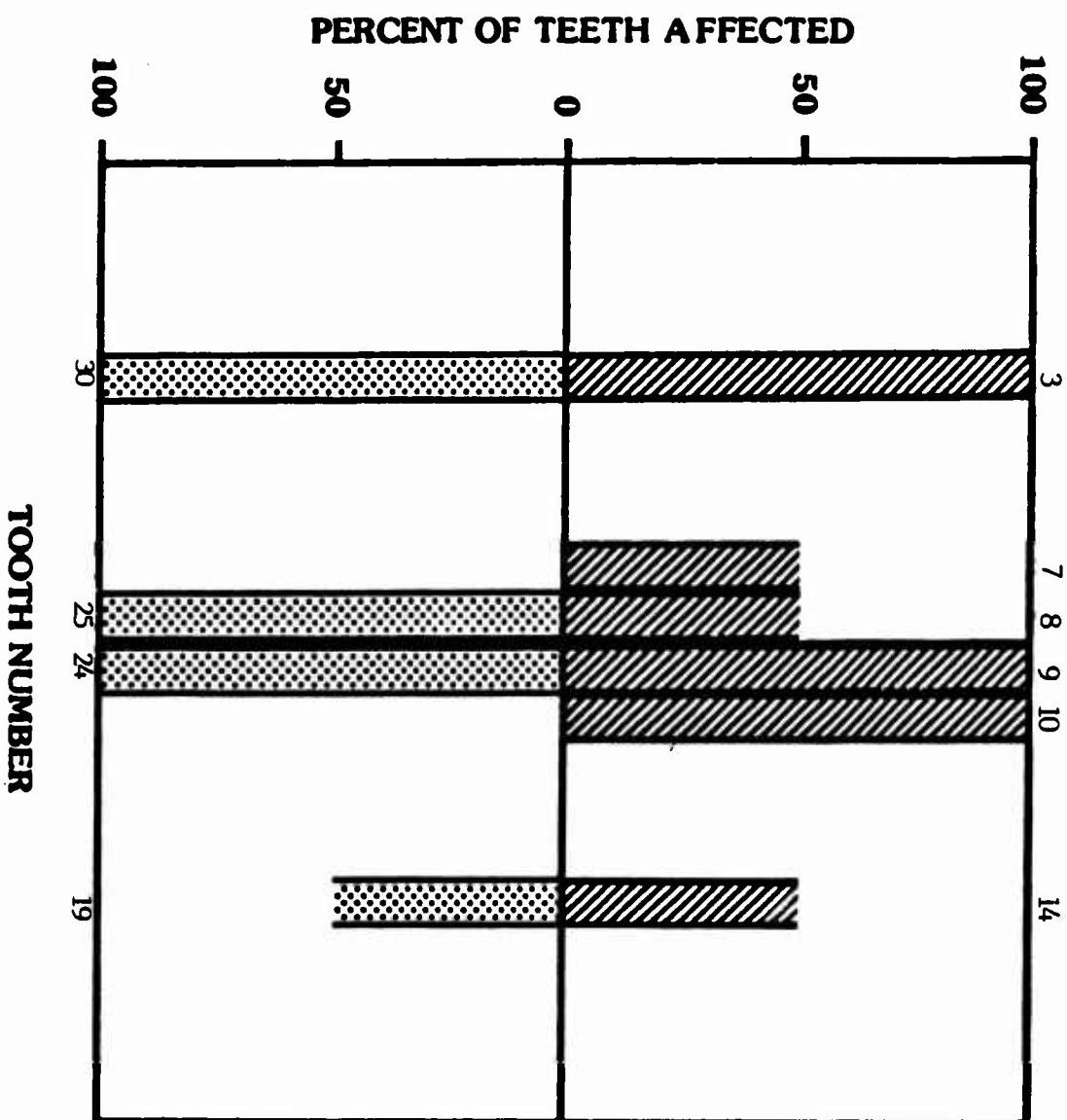
## DISTRIBUTION OF RADIOGRAPHIC BONE LOSS TYPES BY SEX AND RACE

<u>SEX</u>	<u>RACE</u>	<u>TYPE I</u>	<u>%</u>	<u>TYPE II</u>	<u>%</u>	<u>TYPE III</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
Male	Caucasian	0	(0)	2	(4.5)	5	(11.4)	7	(15.9)
	Black	5	(11.4)	9	(20.5)	10	(22.7)	24	(54.5)
	Other	0	(0)	1	(2.3)	0	(0)	1	(2.3)
Total Male		5	(11.4)	12	(27.3)	15	(34.1)	32	(72.7)
Female	Caucasian	0	(0)	3	(6.8)	1	(2.3)	4	(9.1)
	Black	2	(4.5)	4	(9.1)	1	(2.3)	7	(15.9)
	Other	0	(0)	1	(2.3)	0	(0)	1	(2.3)
Total Female		2	(4.5)	8	(18.2)	2	(4.5)	12	(27.3)
Total Caucasian		0	(0)	5	(11.4)	6	(13.6)	11	(25.0)
Total Black		7	(19.9)	13	(29.5)	11	(25.0)	31	(70.5)
Total Other		0	(0)	2	(4.5)	0	(0)	2	(4.5)
Total		7	(19.9)	20	(45.5)	17	(39.6)	44	(100)

Sample Size n = 44

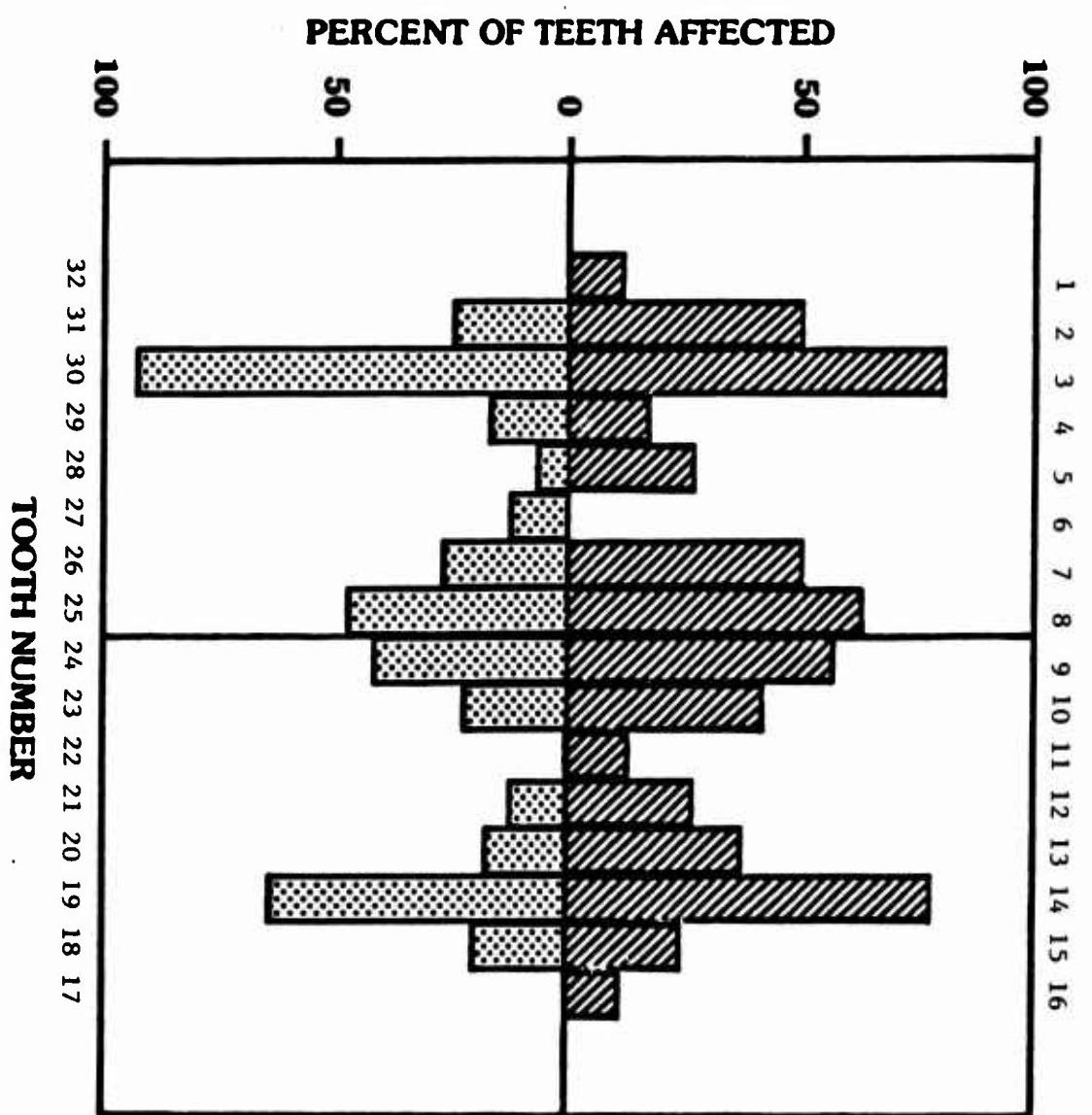
Note: Includes 8 patients not clinically examined, panorex radiographs only.

Figure 1. The frequency or percentage of teeth affected  
in Radiographic Group I.



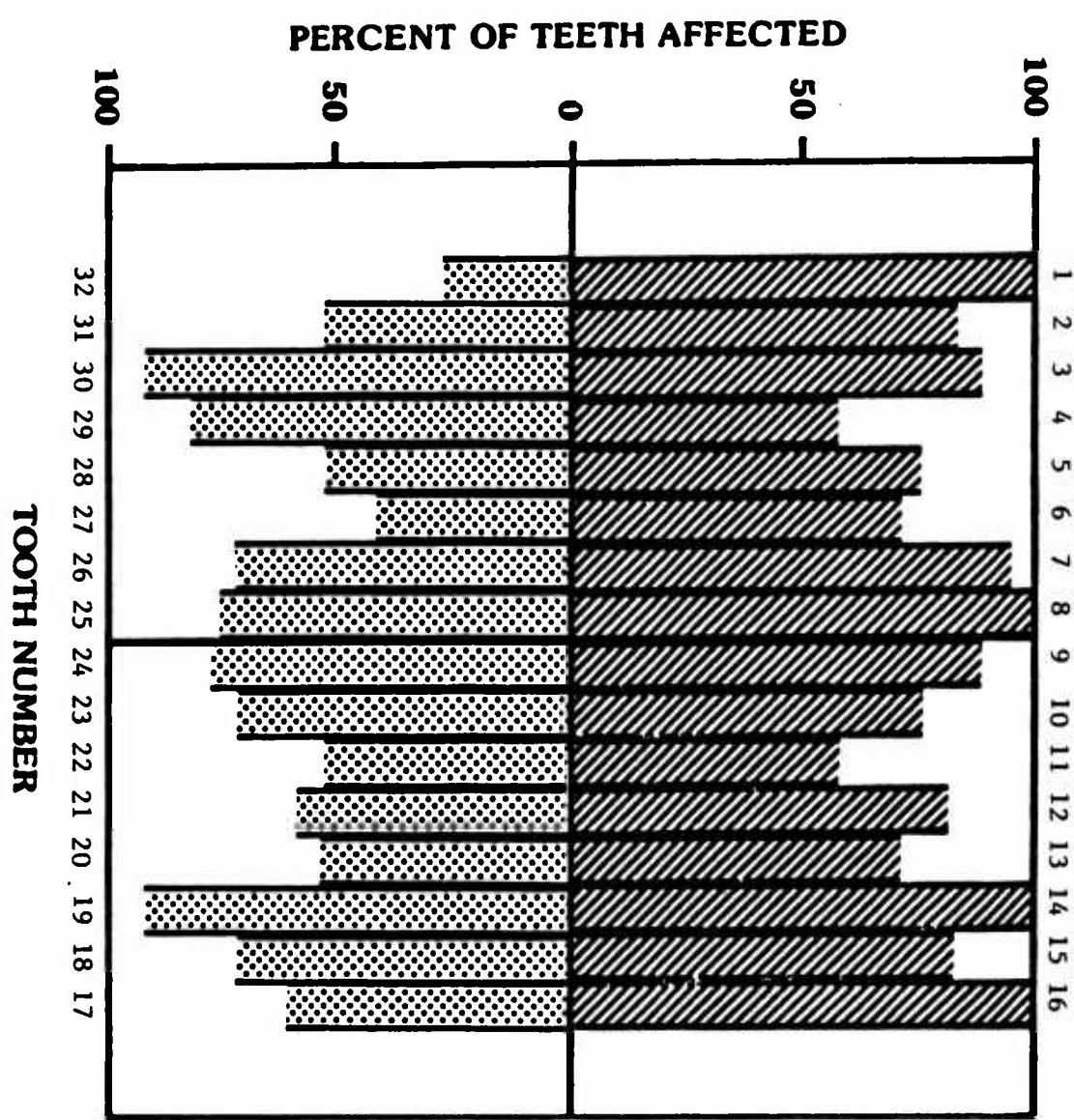
Sample Size n=2 Patients

Figure 2. The frequency or percentage of teeth affected  
in Radiographic Group II.



Sample Size n=17 Patients

Figure 3. The frequency or percentage of teeth affected  
in Radiographic Group III.



Sample Size n=17 Patients

frequently affected teeth in this group were the first molars; and the least frequently affected teeth were the cuspids.

#### D. Clinical Groups

On the basis of clinical examination, patients were assigned to a Clinical Group according to which teeth were involved (Table 10). Clinical Group I (molar-incisor only) included 1 patient, and the percentage of teeth involved is shown in Figure 4. Clinical Group II (< 14 teeth involved) included 18 patients, and the percentage of teeth involved is shown in Figure 5. The most frequently affected teeth in this group were the first molars, and the least frequently affected teeth were the canines and premolars. Clinical Group III ( $\geq$  14 teeth involved) was comprised of 17 patients, and the percentage of teeth involved is shown in Figure 6. The most frequently affected teeth in this group were the first molars, and the least frequently affected were the canines.

#### E. Combined Groups

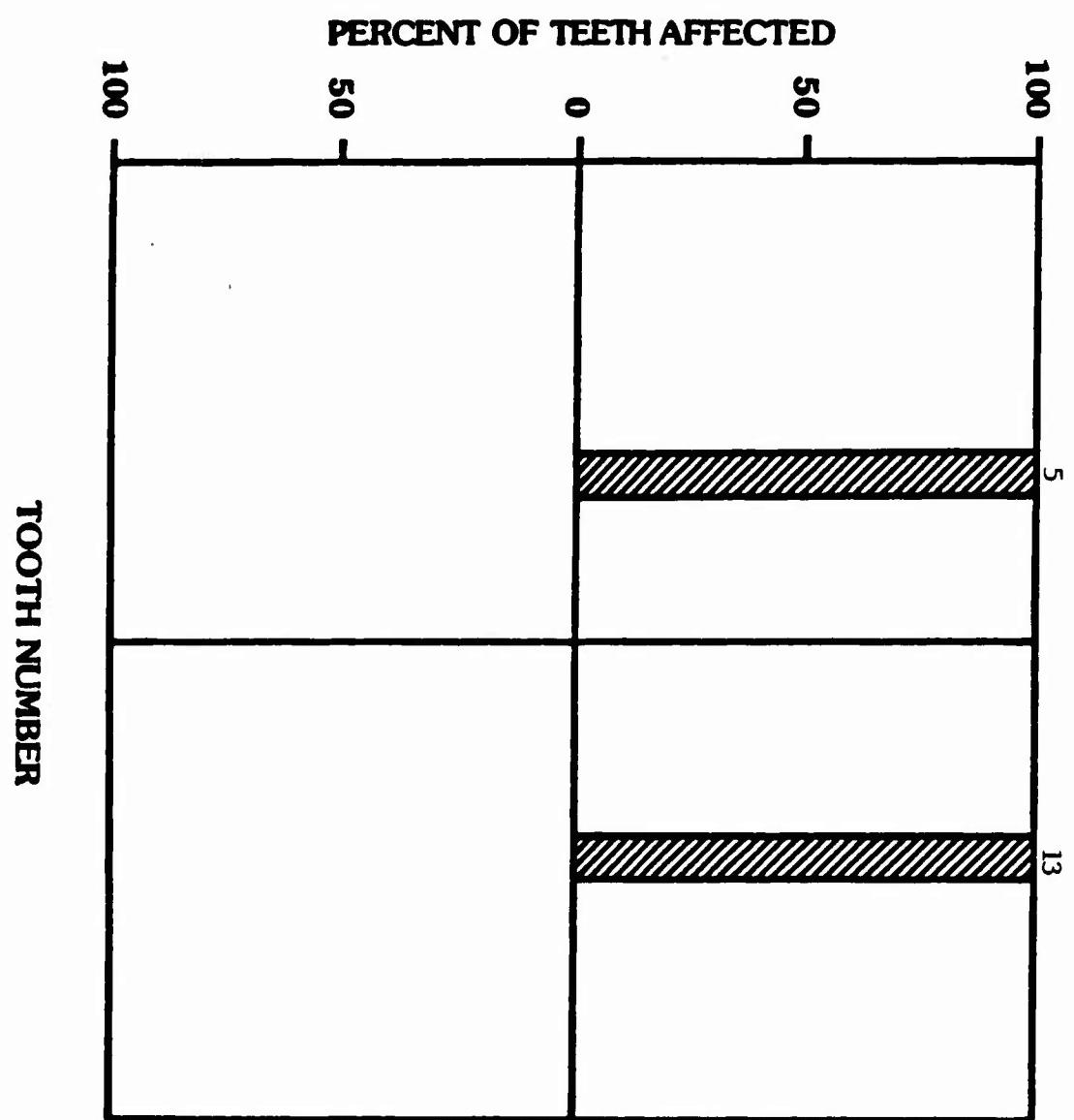
On the basis of the radiographic and/or clinical examination, the patients were assigned to a Combined Group according to which teeth were involved (Table 11). Combined Group I (molar-incisor only) included 5 patients, none of which were available for a clinical examination. Combined Group II (< 14 teeth involved) included 14 patients, of which 11 were available for a clinical examination. The percentage

TABLE 10  
DISTRIBUTION OF CLINICAL ATTACHMENT LOSS TYPES  
BY SEX AND RACE

<u>SEX</u>	<u>RACE</u>	<u>TYPE I</u>	<u>%</u>	<u>TYPE II</u>	<u>%</u>	<u>TYPE III</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
Male	Caucasian	1	(2.8)	2	( 2.8)	4	(11.1)	6	(16.7)
	Black	3	(0)	10	(22.2)	11	(30.6)	19	(52.8)
	Other	0	(0)	1	( 2.8)	0	(0)	1	( 2.8)
Total Male		1	(2.8)	10	(27.8)	15	(41.7)	26	(72.2)
Female	Caucasian	0	(0)	4	(11.1)	0	(0)	4	(11.1)
	Black	2	(0)	3	( 8.3)	2	( 5.6)	5	(13.9)
	Other	0	(0)	1	( 2.8)	0	(0)	1	( 2.8)
Total Female		0	(0)	8	(22.2)	2	( 5.6)	10	(27.8)
Total Caucasian		1	(2.8)	5	(13.9)	4	(11.1)	10	(27.8)
Total Black		0	(0)	11	(30.6)	13	(36.1)	24	(66.7)
Total Other		0	(0)	2	( 5.6)	0	(0)	2	( 5.6)
Total		1	(2.8)	18	(50.0)	17	(47.3)	36	(100)

Sample Size n = 36

Figure 4. The frequency or percentage of teeth affected  
in Clinical Group I.



Sample Size n=1 Patient

Figure 5. The frequency or percentage of teeth affected  
in Clinical Group II.

Sample Size n=18 Patients

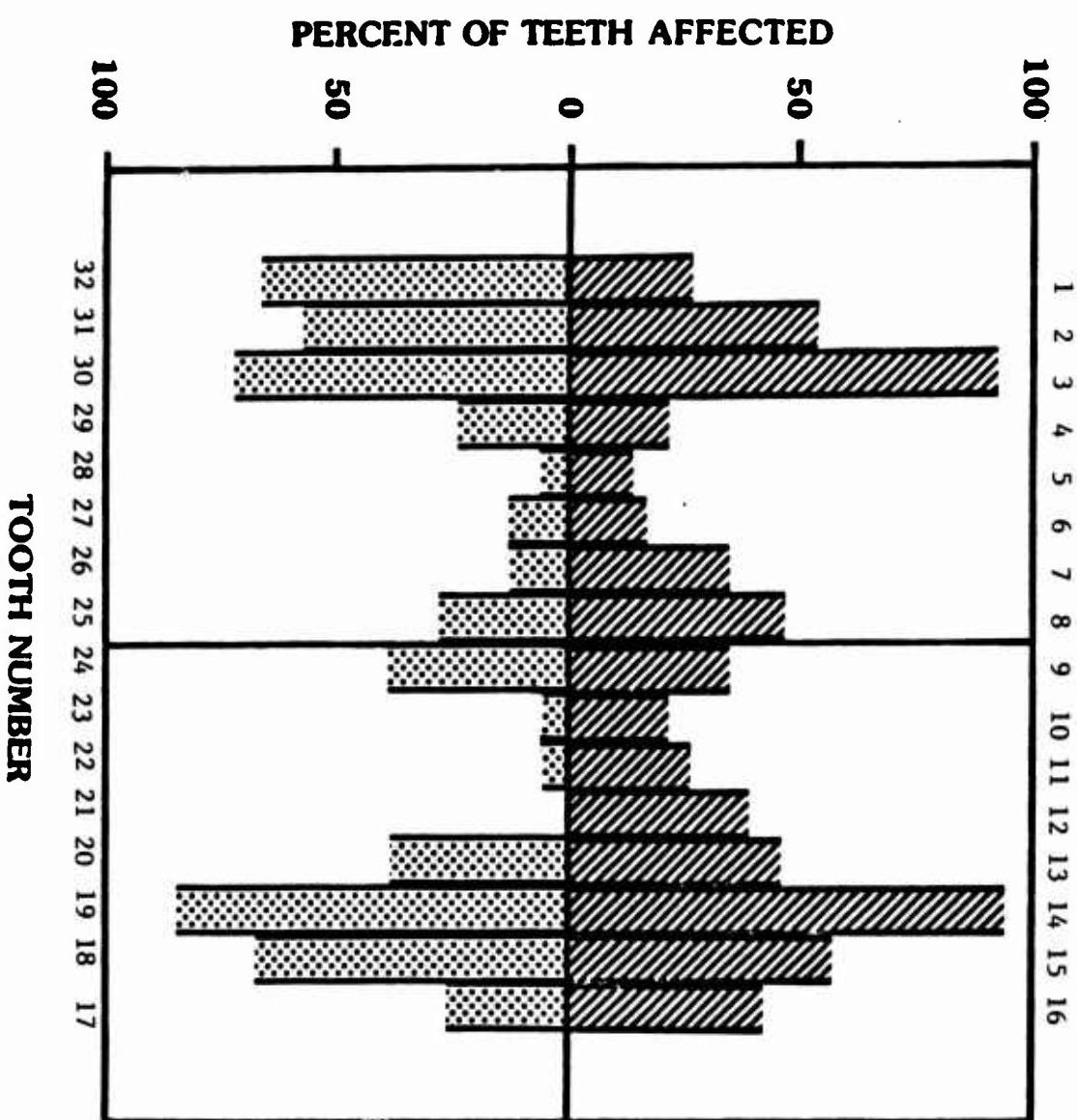
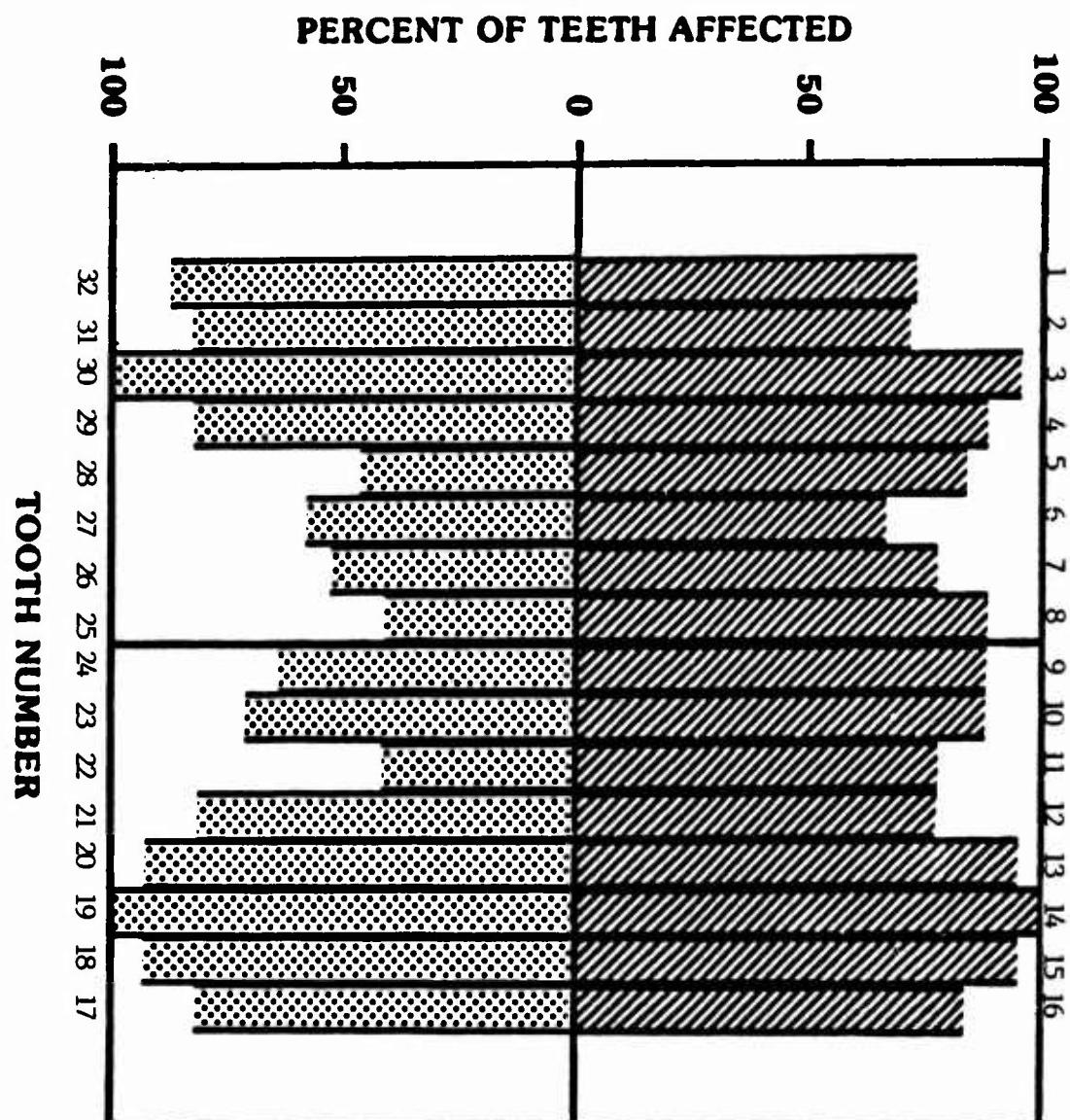


Figure 6. The frequency or percentage of teeth affected  
in Clinical Group III.



### **Sample Size n=17 Patients**

TABLE 11  
 DISTRIBUTION OF CLINICAL ATTACHMENT LOSS TYPES  
 AND/OR RADIOGRAPHIC BONE LOSS TYPES (COMBINED TYPES)  
 BY SEX AND RACE

<u>SEX</u>	<u>RACE</u>	<u>TYPE I</u>	<u>%</u>	<u>TYPE II</u>	<u>%</u>	<u>TYPE III</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
Male	Caucasian	0	(0)	2	(4.5)	5	(11.4)	7	(15.9)
	Black	3	(6.8)	5	(11.4)	16	(36.4)	24	(54.5)
	Other	0	(0)	1	(2.3)	0	(0)	1	(2.3)
Total Male		3	(6.8)	8	(18.2)	21	(47.7)	32	(72.7)
Female	Caucasian	0	(0)	2	(4.5)	2	(4.5)	4	(9.1)
	Black	2	(4.5)	3	(6.8)	2	(4.5)	7	(15.9)
	Other	0	(0)	1	(2.3)	0	(0)	1	(2.3)
Total Female		2	(4.5)	6	(13.6)	4	(9.1)	12	(27.3)
Total Caucasian		0	(0)	4	(9.1)	7	(15.9)	11	(25.0)
Total Black		5	(11.4)	8	(10.2)	18	(40.9)	31	(70.5)
Total Other		0	(0)	2	(4.5)	0	(0)	2	(4.5)
Total		5	(11.4)	14	(31.8)	25	(56.8)	44	(100)

Sample Size n = 44

Note: Includes 8 patients not clinically examined, panorex radiograph only.

of teeth involved in Combined Group II is shown in Figure 7. The most frequently affected teeth in this group were the first molars. The least frequently affected teeth were cuspids and premolars. Combined Group III ( $\geq 14$  teeth included) included 25 patients, all of which were available for a clinical examination. The percentage of teeth involved in Combined Group III is shown in Figure 8. The most frequently affected teeth in Combined Group III were the first molars. The least frequently affected teeth were the cuspids, followed by the premolars.

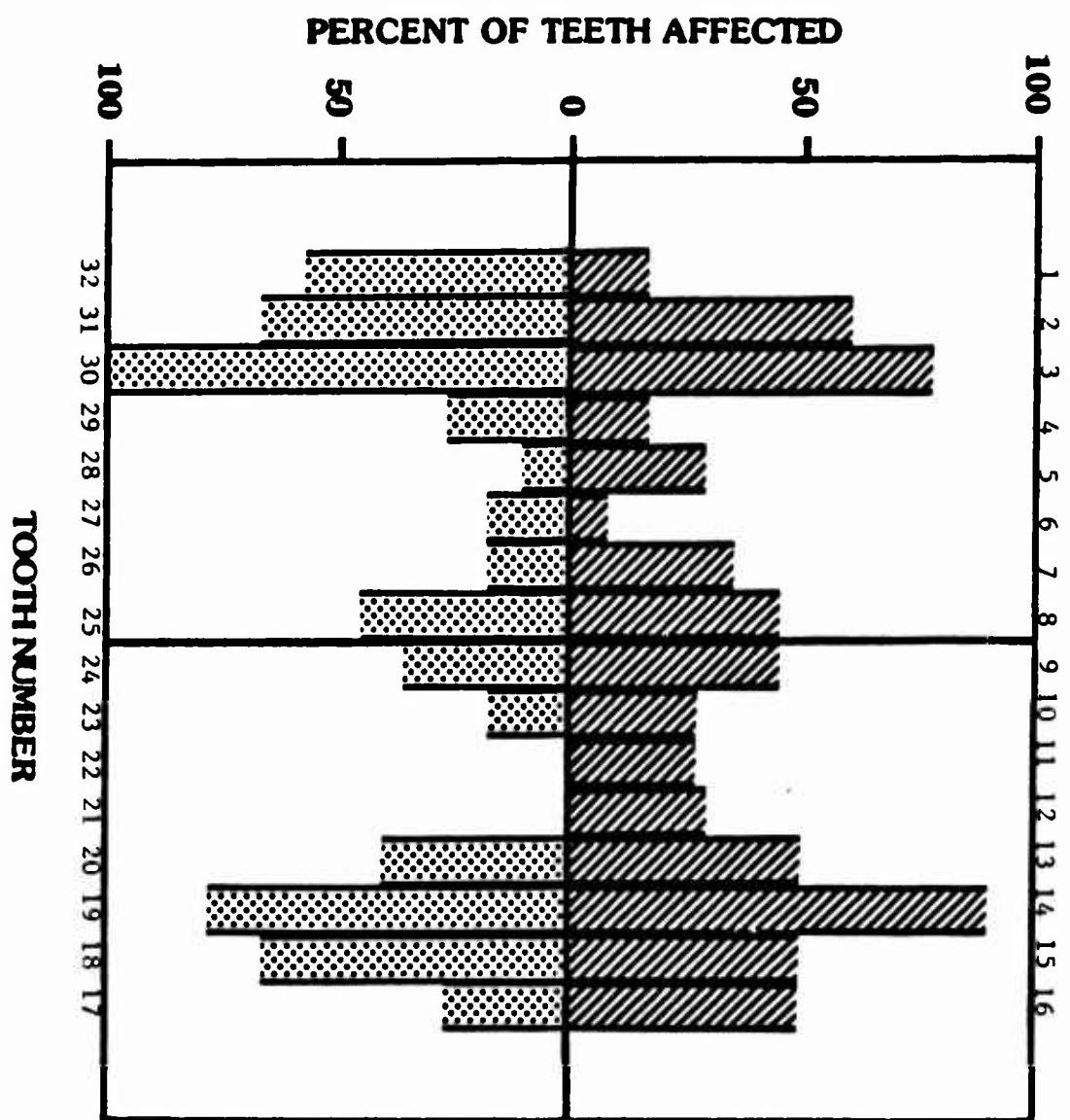
#### F. Effect of Age

The percentage of teeth affected increased with age (Table 12). In 17-21 year olds, 56.13% of the teeth were affected, while in 22-27 year olds, the percentage of affected teeth increased to 76.95%. In addition, the percentage of the population (prevalence) with Combined Type II involvement was 3 times higher in the 22-27 year age group than in 17-21 year olds (Table 13). The prevalence of Combined Type III cases was 4 times higher in 22-27 year olds than in the 17-21 year old age group (Table 14).

#### G. Plaque Index, Gingival Index, Mean Age and Calculus Index

The plaque index by site for Combined Type II patients is shown in Table 15. A higher percentage of the unaffected sites, compared to affected sites, had a plaque

Figure 7. The frequency or percentage of teeth affected  
in Combined Group II.



Sample Size n=11 Patients

Figure 8. The frequency or percentage of teeth affected  
in Combined Group III.

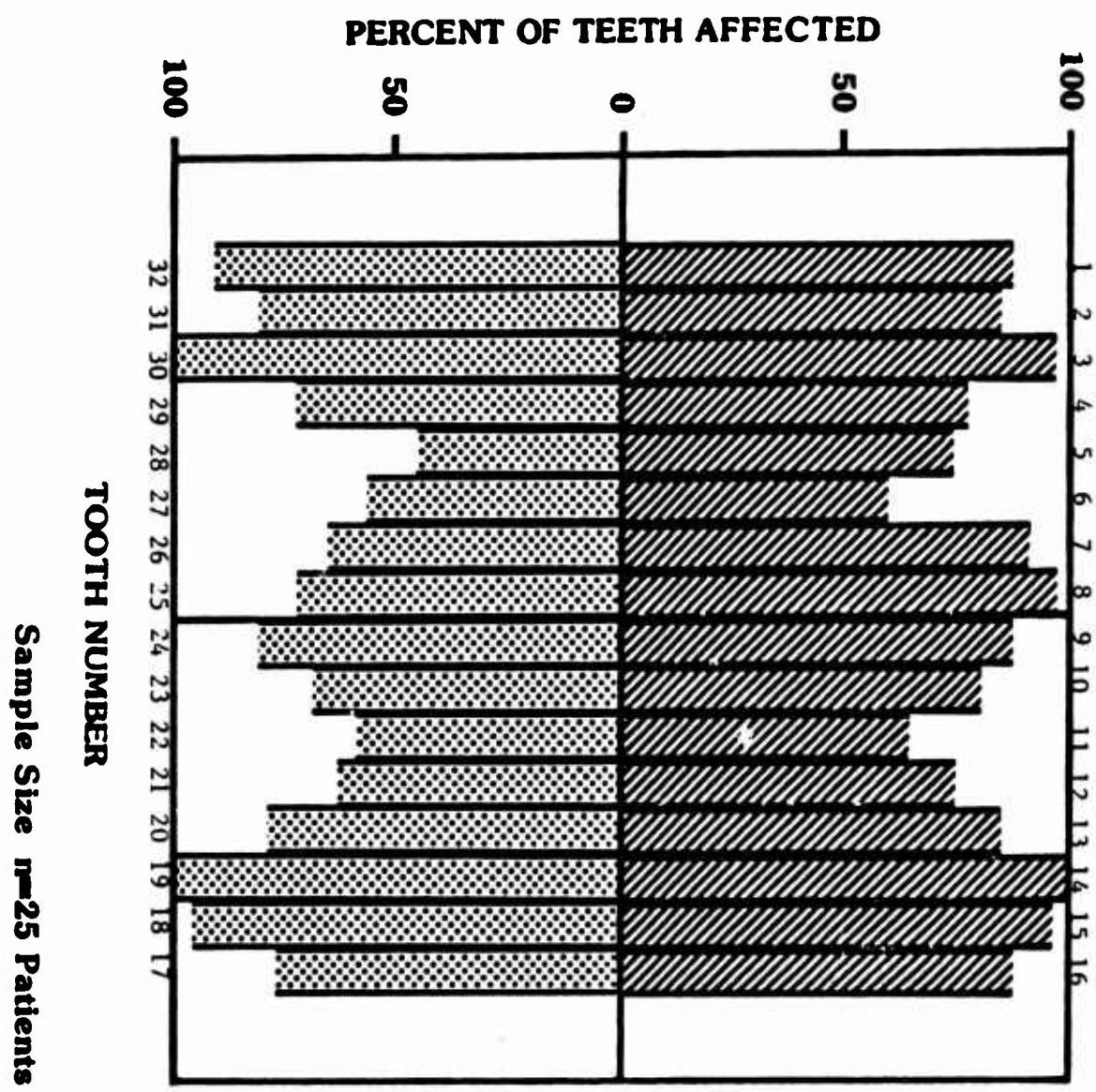


TABLE 12

## DISTRIBUTION OF AFFECTED AND UNAFFECTED TEETH BY AGE GROUP

<u>AGE</u>	<u>17-21</u>	<u>%</u>	<u>22-27</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
Unaffected Teeth	236	(67.8)	112	(32.2)	348	(100)
Affected Teeth	302	(44.7)	374	(55.3)	676	(100)
Total	538	(52.5)	486	(47.5)	1024	(100)

Sample Size n = 1024

Chi square = 49.3 p = .0001

TABLE 13

## SAMPLE COMBINED TYPE II BY AGE, SEX, RACE AND PREVALENCE

<u>SEX</u>	<u>AGE</u>	<u>17-21</u>	<u>PREVALENCE</u>	<u>22-27</u>	<u>PREVALENCE</u>	<u>TOTAL</u>	<u>PREVALENCE</u>
Male	Caucasian	1	( .01)	1	( .05)	2	( .02)
	Black	3	( .20)	2	( .50)	5	( .26)
	Other	0	(0)	1	( .65)	1	( .16)
Total Male		4	( .03)	4	( .14)	8	( .06)
Female	Caucasian	2	( .14)	0	(0)	2	( .11)
	Black	1	( .30)	2	(1.45)	3	( .63)
	Other	1	(1.37)	0	(0)	1	(1.01)
Total Female		4	( .22)	2	( .34)	6	( .25)
Total Caucasian		3	( .03)	1	( .04)	4	( .03)
Total Black		4	( .21)	4	( .74)	8	( .33)
Total Other		1	( .18)	1	( .56)	2	( .27)
Total		8	( .06)	6	( .18)	14	( .08)

Sample Size n = 14

Includes 3 patients not clinically examined.  
Panorex Only.

TABLE 14

## SAMPLE COMBINED TYPE III BY AGE, SEX, RACE AND PREVALENCE

	<u>AGE</u>	<u>17-21</u>	<u>PREVALENCE</u>	<u>22-27</u>	<u>PREVALENCE</u>	<u>TOTAL</u>	<u>PREVALENCE</u>
<u>SEX</u>	<u>RACE</u>						
Male	Caucasian	1	(.01)	4	( .18)	5	(.04)
	Black	9	(.59)	7	(1.73)	16	(.83)
	Other	0	(0)	0	(0)	0	(0)
Total Male		10	(.09)	11	( .40)	21	(.15)
Female	Caucasian	2	(.14)	0	(0)	2	(.11)
	Black	0	(0)	0	(0)	2	(.42)
	Other	0	(0)	0	(0)	0	(0)
Total Female		2	(.11)	2	( .34)	4	(.17)
Total Caucasian		3	(.03)	4	( .15)	7	(.05)
Total Black		9	(.48)	9	(1.66)	18	(.75)
Total Other		0	(0)	0	(0)	0	(0)
Total		12	(.09)	13	( .39)	25	(.15)

Sample Size n = 25

TABLE 15

PLAQUE INDEX BY SURFACE (MESIAL, FACIAL, LINGUAL, DISTAL) ON  
 AFFECTED AND UNAFFECTED SITES IN COMBINED TYPE II PATIENTS

<u>PLAQUE INDEX</u>	<u>0</u>	<u>%</u>	<u>1</u>	<u>%</u>	<u>2</u>	<u>%</u>	<u>3</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SURFACE</u>										
<u>Mesial</u>										
Unaffected	12	( 5.2)	147	(63.1)	67	(28.8)	7	( 3.0)	233	(100)
Affected	4	( 4.8)	44	(53.0)	28	(33.7)	7	( 8.4)	83	(100)
Total Mesial	16	( 5.1)	191	(60.4)	95	(30.1)	14	( 4.4)	316	(100)
<u>Facial</u>										
Unaffected	158	(51.6)	85	(27.8)	56	(18.3)	7	( 2.3)	306	(100)
Affected	2	(20.0)	6	(60.0)	0	(0)	2	(20.0)	10	(100)
Total Facial	160	(50.6)	91	(28.8)	56	(17.7)	9	( 2.8)	316	(100)
<u>Lingual</u>										
Unaffected	73	(23.9)	170	(55.7)	57	(18.7)	5	( 1.6)	305	(100)
Affected	3	(27.3)	3	(27.3)	3	(27.3)	2	(18.2)	11	(100)
Total Lingual	76	(24.1)	173	(54.7)	60	(19.0)	7	( 2.2)	316	(100)
<u>Distal</u>										
Unaffected	14	( 6.0)	146	(62.7)	61	(26.2)	12	( 5.2)	233	(100)
Affected	3	( 3.6)	41	(49.4)	33	(39.8)	6	( 7.2)	83	(100)
Total Distal	17	( 5.4)	187	(59.2)	94	(29.7)	18	( 5.7)	316	(100)
Total	269	(21.3)	642	(50.8)	305	(24.1)	48	( 3.8)	1264	(100)

Sample Size n = 1264

Mesial Chi square = 5.62 p = 0.13  
 Facial Chi square = 17.90 p < 0.001  
 Lingual Chi square = 18.15 p < 0.001  
 Distal Chi square = 6.73 p = 0.08

index equal to 3. There was a significant difference between the plaque index for unaffected and affected sites on the facial and lingual surfaces; however, there was no significant difference between unaffected and affected sites on mesial and distal surfaces.

Table 16 shows the plaque index by site for Combined Type III patients. A higher percentage of the unaffected sites, compared to affected sites, on mesial, facial and distal surfaces exhibited a plaque index equal to 0 or 1. In contrast, a higher percentage of the affected sites, compared to unaffected sites, on mesial, facial and distal surfaces showed a plaque index equal to 2 or 3. There was a significant difference between the plaque index of unaffected and affected sites on the mesial, facial and distal surfaces. In contrast, there was no significant difference between the plaque index of unaffected and affected sites on the lingual surface.

The gingival index by site for Combined Type II patients is shown in Table 17. A higher percentage of unaffected sites, compared to affected sites, on all surfaces demonstrated a gingival index equal to 0, while a higher percentage of affected sites, compared to unaffected sites, on all surfaces had a gingival index equal to 2 or 3. There was a significant difference between the gingival index of unaffected and affected sites for all surfaces.

TABLE 16

PLAQUE INDEX BY SURFACE (MESIAL, FACIAL, LINGUAL, DISTAL) ON  
AFFECTED AND UNAFFECTED SITES IN COMBINED TYPE III PATIENTS

<u>PLAQUE INDEX</u>	<u>0</u>	<u>%</u>	<u>1</u>	<u>%</u>	<u>2</u>	<u>%</u>	<u>3</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u><b>SURFACE</b></u>										
<u><b>Mesial</b></u>										
Unaffected	20 ( 7.8)		176 (68.2)		61 (23.6)		1 (0.4)		258 (100)	
Affected	26 ( 5.8)		248 (55.1)		167 (32.1)		9 (2.0)		450 (100)	
Total Mesial	46 ( 6.5)		424 (59.9)		228 (32.2)		10 (1.4)		708 (100)	
<u><b>Facial</b></u>										
Unaffected	336 (52.6)		217 (34.0)		84 (13.1)		2 (0.3)		639 (100)	
Affected	29 (42.6)		17 (29.0)		16 (23.5)		6 (8.8)		68 (100)	
Total Facial	365 (51.6)		234 (33.1)		100 (14.1)		8 (1.1)		707 (100)	
<u><b>Lingual</b></u>										
Unaffected	162 (26.1)		260 (58.1)		96 (15.5)		2 (0.3)		620 (100)	
Affected	28 (31.8)		45 (51.1)		15 (17.0)		0 (0)		88 (100)	
Total Lingual	190 (26.8)		405 (57.2)		111 (15.7)		2 (0.3)		708 (100)	
<u><b>Distal</b></u>										
Unaffected	15 ( 6.0)		168 (66.7)		69 (27.4)		0 (0)		252 (100)	
Affected	26 ( 5.7)		254 (55.7)		170 (37.3)		6 (1.3)		456 (100)	
Total Distal	41 ( 5.8)		422 (59.6)		239 (33.8)		6 (0.8)		708 (100)	
Total	642 (22.7)		1485 (52.5)		678 (23.9)		26 (0.9)		2831 (100)	

Sample Size n = 2831

Mesial Chi square = 17.94 p < 0.001

Facial Chi square = 46.69 p < 0.001

Lingual Chi square = 1.98 p = 0.58

Distal Chi square = 11.32 p ≤ 0.01

TABLE 17

GINGIVAL INDEX BY SURFACE (MESIAL, FACIAL, LINGUAL, DISTAL) ON  
AFFECTED AND UNAFFECTED SITES IN COMBINED TYPE II PATIENTS

<u>GINGIVAL INDEX</u>	<u>0</u>	<u>%</u>	<u>1</u>	<u>%</u>	<u>2</u>	<u>%</u>	<u>3</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SURFACE</u>										
<u>Mesial</u>										
Unaffected	38	(16.3)	87	(37.3)	108	(46.4)	0	(0)	233	(100)
Affected	3	( 3.6)	7	( 8.4)	70	(84.3)	3	( 3.6)	83	(100)
Total Mesial	41	(13.0)	94	(29.7)	178	(56.3)	3	( 0.9)	316	(100)
<u>Facial</u>										
Unaffected	194	(63.4)	93	(30.4)	19	( 6.2)	0	(0)	306	(100)
Affected	1	(10.0)	5	(50.0)	2	(20.0)	2	(20.0)	10	(100)
Total Facial	195	(61.7)	98	(31.0)	21	( 6.6)	2	( 0.6)	316	(100)
<u>Lingual</u>										
Unaffected	137	(44.9)	117	(38.4)	51	(16.7)	0	(0)	305	(100)
Affected	1	( 9.1)	4	(36.4)	3	(27.3)	3	( 0.9)	11	(100)
Total Lingual	138	(43.7)	121	(38.3)	54	(17.1)	3	( 0.9)	316	(100)
<u>Distal</u>										
Unaffected	31	(13.3)	99	(42.5)	103	(44.2)	0	(0)	233	(100)
Affected	1	( 1.2)	17	(20.5)	62	(74.7)	3	( 3.6)	83	(100)
Total Distal	32	(10.1)	116	(36.7)	165	(52.2)	3	( 0.9)	316	(100)
Total	406	(32.1)	429	(33.9)	418	(33.1)	11	( 0.9)	1264	(100)

Sample Size n = 1264

Mesial Chi square = 48.89 p < 0.001  
 Facial Chi square = 69.65 p < 0.001  
 Lingual Chi square = 87.01 p < 0.001  
 Distal Chi square = 36.24 p < 0.001

Table 18 shows the gingival index by site for Combined Type III patients. In Type III patients a higher percentage of unaffected sites, compared to affected sites, exhibited a gingival index equal to 0 (for all surfaces) while a higher percentage of affected sites, compared to unaffected sites, on the mesial, facial and distal surfaces had a gingival index of 2 or 3. The lingual surface had no sites with a gingival index equal to 3, but the affected sites, compared to unaffected sites, demonstrated a higher percentage of gingival sites with a gingival index equal to 2. There was a significant difference in the gingival index between unaffected and affected sites for all surfaces.

A comparison of mean age, gingival index, plaque index and calculus index between Combined Type II and Combined Type III patients is shown in Table 19. No significant difference between the groups for any of these variables was seen.

#### H. Alveolar Bone Loss

Eighty-one percent (81%) of the mesial surfaces and 82.5% of the distal surfaces of all teeth in Combined Type II patients exhibited Type A bone loss (0-10%) (Table 20). Fifty point six percent (50.6%) of the affected mesial surfaces and 45.7% of the affected distal surfaces demonstrated Type B bone loss (20-40%). There was no significant difference in the

TABLE 18

GINGIVAL INDEX BY SURFACE (MESIAL, FACIAL, LINGUAL, DISTAL) ON  
AFFECTED AND UNAFFECTED SITES IN COMBINED TYPE III PATIENTS

<u>GINGIVAL INDEX</u>	<u>0</u>	<u>%</u>	<u>1</u>	<u>%</u>	<u>2</u>	<u>%</u>	<u>3</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SURFACE</u>										
<u>Mesial</u>										
Unaffected	14	( 5.4)	105	(40.7)	137	(53.1)	2	(0.8)	258	(100)
Affected	9	( 2.0)	75	(16.7)	359	(79.8)	7	(1.6)	450	(100)
Total Mesial	23	( 3.2)	180	(25.4)	496	(70.1)	9	(1.3)	708	(100)
<u>Facial</u>										
Unaffected	389	(60.8)	166	(25.9)	84	(13.1)	1	(0.2)	640	(100)
Affected	20	(29.4)	19	(27.9)	28	(41.2)	1	(1.5)	68	(100)
Total Facial	409	(57.8)	185	(26.1)	112	(15.8)	2	(0.3)	708	(100)
<u>Lingual</u>										
Unaffected	250	(40.3)	249	(40.2)	121	(19.5)	0	(0)	620	(100)
Affected	14	(15.9)	26	(29.5)	48	(54.5)	0	(0)	88	(100)
Total Lingual	264	(37.3)	275	(38.8)	169	(23.9)	0	(0)	708	(100)
<u>Distal</u>										
Unaffected	13	( 5.2)	123	(48.8)	116	(46.0)	0	(0)	252	(100)
Affected	7	( 1.5)	102	(22.4)	342	(75.0)	5	(1.1)	456	(100)
Total Distal	20	( 2.8)	225	(31.8)	458	(64.7)	5	(0.7)	708	(100)
Total	716	(25.3)	865	(30.5)	1235	(43.6)	16	(0.6)	2832	(100)

Sample Size n = 2832

Mesial Chi square = 60.62 p < 0.001  
 Facial Chi square = 44.90 p < 0.001  
 Lingual Chi square = 54.17 p < 0.001  
 Distal Chi square = 67.07 p < 0.001

TABLE 19

COMPARISON OF AGE, GINGIVAL INDEX, PLAQUE INDEX AND CALCULUS INDEX BETWEEN COMBINED TYPE II AND COMBINED TYPE III PATIENTS

AGE

<u>COMBINED TYPE</u>	<u>II</u>	<u>III</u>
Mean	21.2727	21.8400
Standard Deviation	2.2843	2.8821
Sample Size	11	25
T = 0.58	p = 0.5681	

GINGIVAL INDEX

Mean	1.0182	1.1824
Standard Deviation	0.2903	0.3574
Sample Size	11	25
T = 1.34	p = 0.1896	

PLAQUE INDEX

Mean	1.1200	1.0260
Standard Deviation	0.4422	0.3787
Sample Size	11	25
T = 0.65	p = 0.5187	

CALCULUS INDEX

Mean	0.6227	0.9672
Standard Deviation	0.4283	0.8353
Sample Size	11	25
T = 1.63	p = 0.1123	

TABLE 20

EXTENT OF ROOT INVOLVEMENT ON MESIAL AND DISTAL SURFACES  
 IN UNAFFECTED AND AFFECTED SITES, COMBINED TYPE II PATIENTS

<u>TYPE</u>	<u>A</u>	<u>%</u>	<u>B</u>	<u>%</u>	<u>C</u>	<u>%</u>	<u>D</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SURFACE</u>										
<u>Mesial</u>										
Unaffected	227	(100)	0	(0)	0	(0)	0	(0)	227	(100)
Affected	24	(28.9)	42	(50.6)	10	(12.0)	7	(8.4)	83	(100)
Total Mesial	251	(81.0)	42	(13.5)	10	(3.2)	7	(2.3)	310	(100)
<u>Distal</u>										
Unaffected	211	(100)	0	(0)	0	(0)	0	(0)	211	(100)
Affected	30	(37.0)	37	(45.7)	9	(11.1)	5	(6.2)	81	(100)
Total Distal	241	(82.5)	37	(12.7)	9	(3.1)	5	(1.7)	292	(100)
Total	492	(81.7)	79	(13.1)	19	(3.2)	12	(2.0)	602	(100)

Sample Size n = 602

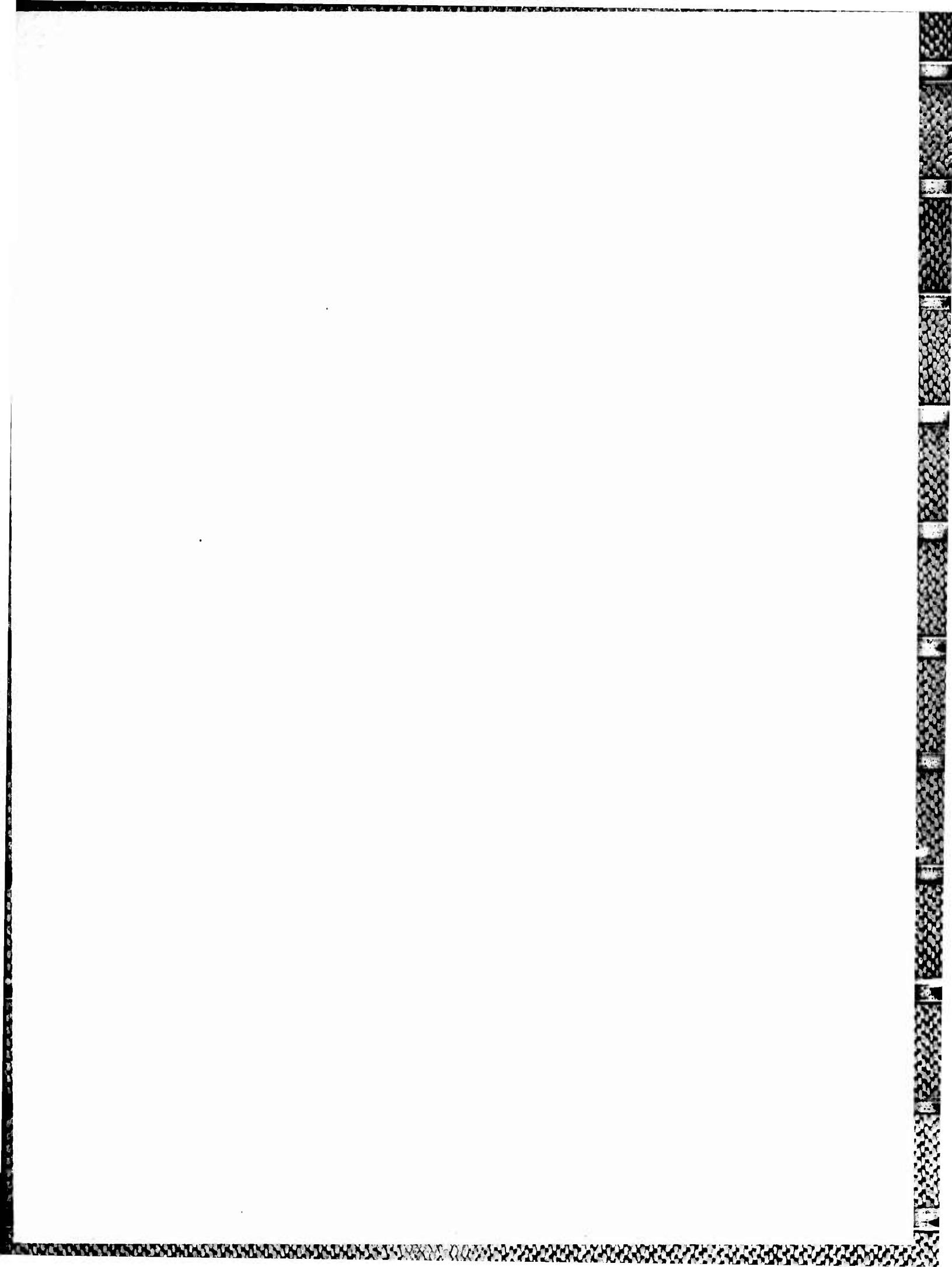
Mesial Chi square = 199.29 p < 0.001  
 Distal Chi square = 160.97 p < 0.001

Mesial VS Distal Chi square = 1.35 p = 0.72

distribution of Type A, B, C or D bone loss between mesial and distal surfaces of teeth in Combined Type II cases.

The average percent of bone loss by tooth and surface for Combined Type II patients is shown in Figure 9. The most severely affected teeth were first molars, followed by central incisors. A comparison of the average percentage of bone loss, maxillary versus mandibular arches (Table 21), showed no significant difference between arches for either mesial or distal tooth surfaces. For tooth surfaces with bone loss in Combined Type II cases, 77.3% exhibited horizontal bone loss and 22.7% demonstrated angular bone loss (Table 22). A significant difference was seen on the distal surface where 26.0% of the affected surfaces showed angular bone loss and only 6.7% of the unaffected surfaces (< 20% bone loss) demonstrated angular bone loss. There was no significant difference between affected and unaffected mesial surfaces. There was no significant difference in the distribution of angular and horizontal bone loss between affected mesial and distal surfaces of teeth in Combined Type II patients.

In the Combined Type III patients, 49.1% of the mesial surfaces and 47.3% of the distal surfaces of teeth exhibited Type A bone loss (0-10%) (Table 23). Type B bone loss (20-40%) was associated with 68.8% of the affected mesial and 67.7% of the affected distal tooth surfaces. There was no significant difference in the distribution of Type A, B, C or



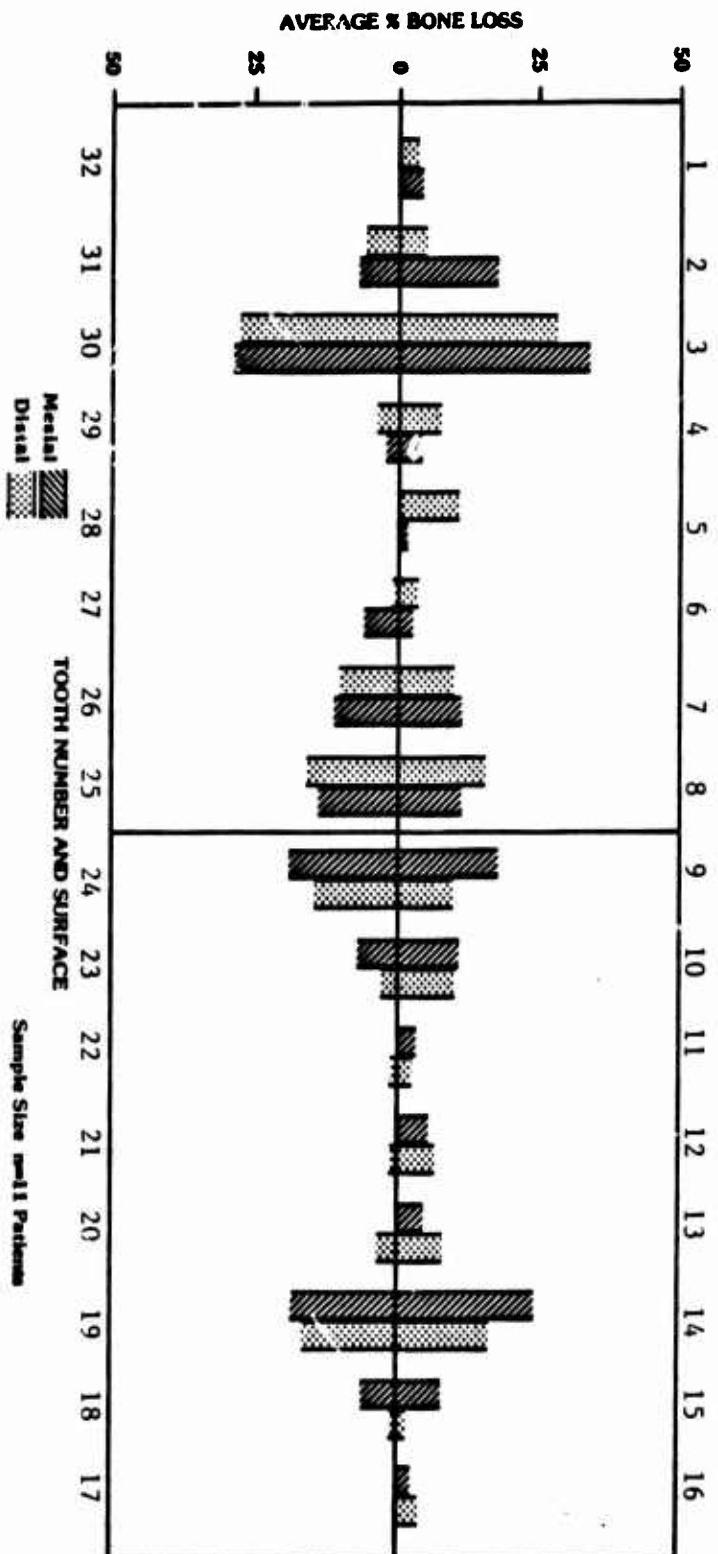


TABLE 21

COMPARISON OF AVERAGE PERCENTAGE OF BONE LOSS ON MESIAL  
AND DISTAL SURFACES OF COMBINED TYPE II PATIENTS  
MAXILLARY VERSUS MANDIBULAR

<u>TEETH</u>		<u>MAXILLARY</u>	<u>MANDIBULAR</u>
<u>SURFACE</u>			
Mesial	Mean	10.74	7.76
	Standard Deviation	17.22	18.72
	T =	1.46	p = 0.145
Distal	Mean	9.59	7.35
	Standard Deviation	16.32	16.85
	T =	1.15	p = 0.250

TABLE 22

ANGULAR VERSUS HORIZONTAL BONE LOSS  
(MESIAL AND DISTAL SURFACES)

ON AFFECTED AND UNAFFECTED TEETH IN COMBINED TYPE II PATIENTS

<u>TYPE OF BONE LOSS</u>		<u>ANGULAR</u>	<u>%</u>	<u>HORIZONTAL</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SURFACE</u>							
Mesial	Unaffected	5	(15.6)	27	(84.4)	32	(100)
	Affected	22	(28.6)	55	(71.4)	77	(100)
	Total Mesial	27	(24.8)	82	(75.2)	109	(100)
Distal	Unaffected	2	( 6.7)	28	(93.3)	30	(100)
	Affected	20	(26.0)	57	(74.0)	77	(100)
	Total Distal	22	(20.6)	85	(79.4)	107	(100)
	Total	49	(22.7)	167	(77.3)	216	(100)

Sample Size n = 216

Mesial Chi square = 1.40 p = .24  
 Distal Chi square = 3.82 p = .05

Mesial VS Distal Affected Teeth  
 Chi square = 0.03 p = .86

TABLE 23

EXTENT OF ROOT INVOLVEMENT ON MESIAL AND DISTAL SURFACES IN  
UNAFFECTED AND AFFECTED SITES, COMBINED TYPE III PATIENTS

<u>TYPE</u>	<u>A</u>	<u>%</u>	<u>B</u>	<u>%</u>	<u>C</u>	<u>%</u>	<u>D</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SURFACE</u>										
<u>Mesial</u>										
Unaffected	246	(100)	0	(0)	0	(0)	0	(0)	246	(100)
Affected	95	(21.2)	308	(68.8)	40	(8.9)	5	(1.1)	448	(100)
Total Mesial	341	(49.1)	308	(44.4)	40	(5.8)	5	(0.7)	694	(100)
<u>Distal</u>										
Unaffected	206	(100)	0	(0)	0	(0)	0	(0)	206	(100)
Affected	96	(22.2)	293	(67.7)	39	(9.0)	5	(1.2)	433	(100)
Total Distal	302	(47.3)	293	(45.9)	39	(6.1)	5	(0.8)	639	(100)
Total	643	(48.2)	601	(45.1)	79	(5.9)	10	(0.8)	1333	(100)

Sample Size n = 1333

Mesial Chi square = 394.45 p < 0.001

Distal Chi square = 339.24 p < 0.001

Mesial VS Distal Chi square = .14 p = 0.99

D bone loss between affected mesial and distal tooth surfaces in Combined Type III patients.

Figure 10 illustrates the average percentage (severity) of bone loss by tooth and surface for Combined Type III patients. The most severely affected teeth were the first molars, followed by central incisors. Mesial surfaces exhibited a significantly higher percentage of bone loss in the maxillary arch compared to the mandibular arch (Table 24). No significant difference was seen between the arches for the distal surfaces of teeth. In Combined Type III cases, 84.5% of the teeth with bone loss exhibited horizontal bone loss and 15.5% angular bone loss (Table 25). A significant difference was seen on the mesial surface, where 17.2% of the affected sites showed angular bone loss as compared to 5.4% of the unaffected sites (< 20% bone loss). On the distal surface, 16.6% of the affected sites showed angular bone loss, while only 2.0% of the unaffected sites (< 20% bone loss) demonstrated angular bone loss. The latter finding was statistically significant. There was no significant difference in the distribution of angular and horizontal bone loss between the mesial and distal surfaces of teeth with bone loss in Combined Type III patients.

A comparison of the average percentage of bone loss between Combined Type II and Combined Type III cases is shown in Table 26. Combined Type III patients had twice the average percentage of bone loss on mesial and distal surfaces in both

Figure 10. The average percentage of bone loss (severity) by tooth and surface in Combined Type III patients.

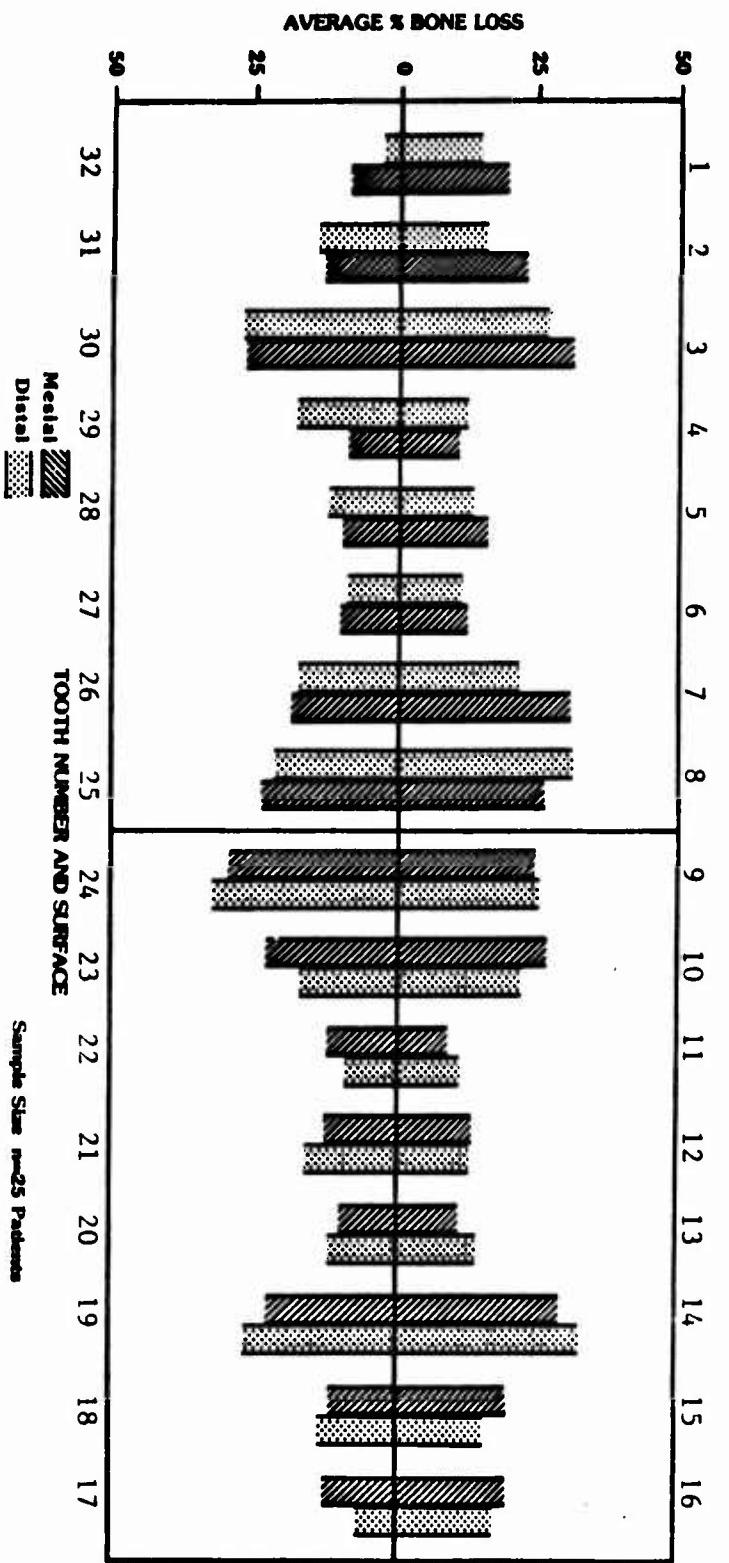


TABLE 24  
COMPARISON OF AVERAGE PERCENTAGE OF BONE LOSS ON MESIAL  
AND DISTAL SURFACES OF COMBINED TYPE III PATIENTS  
MAXILLARY VERSUS MANDIBULAR

<u>TEETH</u>		<u>MAXILLARY</u>	<u>MANDIBULAR</u>
<u>SURFACE</u>			
Mesial	Mean	20.40	16.34
	Standard Deviation	16.62	16.57
		T = 3.23	p = 0.001
Distal	Mean	19.54	17.67
	Standard Deviation	15.36	17.22
		T = 1.45	p = 0.146

TABLE 25

## ANGULAR VERSUS HORIZONTAL BONE LOSS

(MESIAL AND DISTAL SURFACES)

ON AFFECTED AND UNAFFECTED TEETH IN COMBINED TYPE III PATIENTS

<u>TYPE OF BONE LOSS</u>	<u>ANGLE</u>	<u>%</u>	<u>HORIZONTAL</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SURFACE</u>						
Mesial Unaffected	3	( 5.4)	53	(94.6)	56	(100)
Affected	80	(17.2)	386	(82.8)	466	(100)
Total Mesial	83	(15.9)	439	(84.1)	522	(100)
Distal Unaffected	1	( 2.0)	48	(98.0)	49	(100)
Affected	73	(16.6)	368	(83.4)	441	(100)
Total Distal	74	(15.1)	416	(84.9)	490	(100)
Total	157	(15.5)	855	(84.5)	1012	(100)

Sample Size n = 1012

Mesial Chi square = 4.36 p = .04  
Distal Chi square = 6.16 p = .01Mesial VS Distal Affected Teeth  
Chi square = 0.03 p = .87

TABLE 26  
 COMPARISON OF AVERAGE PERCENTAGE OF BONE LOSS  
 ON MESIAL AND DISTAL SURFACES  
 COMBINED GROUP II VERSUS COMBINED GROUP III

<u>COMBINED GROUP</u>			<u>II</u>	<u>III</u>
<u>TEETH</u>	<u>SURFACE</u>			
Maxillary	Mesial	Mean	10.74	20.40
		Standard Deviation	17.22	16.62
			T = 5.86	p < 0.001
	Distal	Mean	9.58	19.54
		Standard Deviation	16.32	15.36
			T = 6.21	p < 0.001
Mandibular	Mesial	Mean	7.76	16.34
		Standard Deviation	18.72	16.57
			T = 4.92	p < 0.001
	Distal	Mean	7.35	17.67
		Standard Deviation	16.85	17.22
			T = 6.09	p < 0.001
Maxillary and Mandibular	Mesial	Mean	9.24	18.37
		Standard Deviation	18.02	16.70
	Distal	Mean	8.46	18.61
		Standard Deviation	16.60	16.32
			T = 8.70	p < 0.001

the maxillary and mandibular arches compared to Combined Type II patients. This was statistically significant.

Twenty-two of the 44 patients in this study demonstrated radiographic evidence of symmetrical bone loss between right and left sides of the mouth. In the localized juvenile periodontitis group, 3 of the 5 patients had symmetrical bone loss. Of the intermediate juvenile periodontitis group, 5 of 14 were judged to be symmetrical. In the generalized juvenile periodontitis patients, 14 of the 25 cases demonstrated symmetrical bone loss.

#### I. Bleeding on Probing

In Combined Type II cases, a significantly higher percentage of the affected sites demonstrated bleeding on probing than unaffected sites for all surfaces (Table 27). Of the affected sites, 43.3% demonstrated bleeding on probing, while only 11.8% of the unaffected sites exhibited bleeding on probing.

A comparison of bleeding on probing of mesial, facial, lingual and distal surfaces in affected and unaffected sites in Combined Type III patients is shown in Table 28. A significantly higher percentage of the affected sites, on all surfaces, bled on probing compared to unaffected sites. Of the affected sites, 36.0% demonstrated bleeding on probing compared to 13.4% of the unaffected sites.

TABLE 27

BLEEDING ON PROBING BY SURFACE  
(MESIAL, FACIAL, LINGUAL, DISTAL)  
IN AFFECTED AND UNAFFECTED SITES IN COMBINED TYPE II PATIENTS

<u>BLEEDING ON PROBING</u>		<u>PRESENT</u>	<u>%</u>	<u>ABSENT</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SURFACE</u>							
Mesial	Unaffected	40	(17.2)	193	(82.8)	233	(100)
	Affected	37	(44.6)	46	(55.4)	83	(100)
	Total Mesial	77	(24.4)	239	(75.6)	316	(100)
Facial	Unaffected	14	(4.6)	292	(95.4)	306	(100)
	Affected	4	(40.0)	6	(60.0)	10	(100)
	Total Facial	18	(5.7)	298	(94.3)	316	(100)
Lingual	Unaffected	40	(13.1)	265	(86.9)	305	(100)
	Affected	7	(63.6)	4	(36.4)	11	(100)
	Total Lingual	47	(14.9)	269	(85.1)	316	(100)
Distal	Unaffected	33	(14.2)	200	(85.8)	233	(100)
	Affected	33	(39.8)	50	(60.2)	83	(100)
	Total Distal	66	(20.9)	250	(79.1)	316	(100)
Total		208	(16.5)	1056	(83.5)	1264	(100)

Sample Size n = 1264

Mesial Chi square = 24.95 p < 0.001  
 Facial Chi square = 22.62 p < 0.001  
 Lingual Chi square = 21.40 p < 0.001  
 Distal Chi square = 24.27 p < 0.001

TABLE 28

BLEEDING ON PROBING BY SURFACE  
(MESIAL, FACIAL, LINGUAL, DISTAL)

IN AFFECTED AND UNAFFECTED SITES IN COMBINED TYPE III PATIENTS

<u>BLEEDING ON PROBING</u>		<u>PRESENT</u>	<u>%</u>	<u>ABSENT</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SURFACE</u>							
Mesial	Unaffected	37	(14.3)	221	(85.7)	258	(100)
	Affected	164	(36.4)	286	(63.6)	450	(100)
	Total Mesial	201	(28.4)	507	(71.6)	708	(100)
Facial	Unaffected	68	(10.6)	572	(89.4)	640	(100)
	Affected	21	(30.9)	47	(69.1)	68	(100)
	Total Facial	89	(12.6)	619	(87.4)	708	(100)
Lingual	Unaffected	102	(16.5)	518	(83.5)	620	(100)
	Affected	41	(46.6)	47	(53.4)	88	(100)
	Total Lingual	143	(20.2)	565	(79.8)	708	(100)
Distal	Unaffected	30	(11.9)	222	(88.1)	252	(100)
	Affected	156	(34.2)	300	(65.8)	456	(100)
	Total Distal	186	(26.3)	522	(73.7)	708	(100)
Total		619	(21.9)	2213	(78.1)	2832	(100)

Sample Size n = 2832

Mesial Chi square = 39.41 p < 0.001  
 Facial Chi square = 22.95 p < 0.001  
 Lingual Chi square = 43.43 p < 0.001  
 Distal Chi square = 41.69 p < 0.001

#### J. Mobility

Affected teeth in Combined Type II cases exhibited significantly greater mobility compared to unaffected teeth (Table 29). For unaffected teeth, 99.5% demonstrated no mobility, while 1 tooth (0.5%) exhibited a mobility of I. For affected teeth, 83.6% exhibited no mobility, 12 teeth (9.8%) a mobility of I, 2 teeth (1.6%) a mobility of II and 6 teeth (4.9%) had a mobility of III. Of all the teeth in this group, 93.3% exhibited no mobility.

Affected teeth in Combined Type III patients also showed a significantly higher mobility than unaffected teeth (Table 30). Most of the unaffected teeth (94.8%) in Combined Type III patients showed no mobility, with 8 teeth (5.2%) exhibiting a mobility of I. For affected teeth, 85.0% demonstrated no mobility, 70 teeth (12.7%) a mobility of I, 10 teeth (1.4%) a mobility of II and 3 teeth (0.4%) demonstrated a mobility of III. Of all the teeth in this group, 87.1% exhibited no mobility.

#### K. Furcation Invasion

In Combined Type II patients, a significantly higher percentage of affected molar teeth demonstrated radiographic evidence of furcation invasion than unaffected molar teeth (Table 31). None of the unaffected teeth in this group exhibited radiographic evidence of furcation invasion, while it was evident in 18.2% of the affected molar teeth.

TABLE 29

DISTRIBUTION OF MOBILITY IN COMBINED TYPE II PATIENTS  
 BY UNAFFECTED AND AFFECTED TEETH

<u>MOBILITY</u>	<u>0</u>	<u>%</u>	<u>I</u>	<u>%</u>	<u>II</u>	<u>%</u>	<u>III</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
Unaffected Teeth	192	(99.5)	1	(0.5)	0	(0)	0	(0)	193	(100)
Affected Teeth	102	(83.6)	12	(9.8)	2	(1.6)	6	(4.9)	122	(100)
Total	294	(93.3)	13	(4.1)	2	(0.6)	6	(1.9)	315	(100)

Sample Size n = 315

Chi square = 30.40 p < 0.001

TABLE 30

DISTRIBUTION OF MOBILITY IN COMBINED TYPE III PATIENTS  
 BY UNAFFECTED AND AFFECTED TEETH

<u>MOBILITY</u>	<u>0</u>	<u>%</u>	<u>I</u>	<u>%</u>	<u>II</u>	<u>%</u>	<u>III</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
Unaffected Teeth	147	(94.8)	8	(5.2)	0	(0)	0	(0)	155	(100)
Affected Teeth	470	(85.0)	70	(12.7)	10	(1.8)	3	(0.5)	553	(100)
Total	617	(87.1)	78	(11.0)	10	(1.4)	3	(0.4)	708	(100)

Sample Size n = 708

Chi square = 11.167 p = 0.0109

TABLE 31

DISTRIBUTION OF RADIOGRAPHIC EVIDENCE OF  
FURCATION INVASION (FI) IN COMBINED TYPE II PATIENTS  
BY AFFECTED AND UNAFFECTED MOLAR TEETH

<u>FI</u>	<u>PRESENT</u>	<u>%</u>	<u>ABSENT</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
Unaffected teeth	0	(0)	36	(100)	36	(100)
Affected teeth	12	(18.2)	54	(81.8)	66	(100)
Total	12	(11.8)	90	(88.2)	102	(100)

Sample Size n = 102

Fisher Exact Test (2-Tail) p < 0.001

A comparison of radiographic evidence of furcation invasion in Combined Type III cases is shown in Table 32. Although none of the 14 unaffected molar teeth demonstrated furcation invasion and 42 of the 203 affected molar teeth did show furcation invasion, this was not statistically significant because of the small number of unaffected teeth in this group.

L. Balancing Interferences

While only 17 (1.7%) of 1024 teeth in this study (all patients) demonstrated balancing interferences (Table 33), 16 of these were on affected teeth. This was statistically significant.

TABLE 32

DISTRIBUTION OF RADIOGRAPHIC EVIDENCE OF  
FURCATION INVASION (FI) IN COMBINED TYPE III PATIENTS  
BY AFFECTED AND UNAFFECTED MOLAR TEETH

<u>FI</u>	<u>PRESENT</u>	<u>%</u>	<u>ABSENT</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
Unaffected teeth	0	(0)	14	(100)	14	(100)
Affected teeth	42	(20.7)	161	(79.3)	203	(100)
Total	42	(19.4)	175	(80.6)	217	(100)

Sample Size n = 217

Fisher Exact Test (2-Tail) p = 0.08

TABLE 33  
 DISTRIBUTION OF BALANCING INTERFERENCES  
 ON UNAFFECTED AND AFFECTED TEETH

<u>BALANCING INTERFERENCES</u>	<u>PRESENT</u>	<u>%</u>	<u>ABSENT</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
Unaffected teeth	1	( .3)	347	(99.7)	348	(100)
Affected teeth	16	(2.4)	660	(97.6)	676	(100)
Total	17	(1.7)	1007	(98.3)	1024	(100)

Sample Size n = 1024

Chi square = 4.88 p = 0.03

## V. DISCUSSION

### A. Population, Sample and Prevalence

Panoramic radiographs were chosen to screen the population for evidence of alveolar bone loss. This method was chosen for this study because panoramic radiographs are routinely exposed and interpreted on all incoming basic trainees at Lackland AFB, Texas, and they have been shown to be a reliable screening tool. (Davies et al., 1977) The screening method chosen was not felt to influence the results of this study. In fact, 7 of the patients initially invited to participate in this study subsequently were diagnosed as having little or no alveolar bone loss (< 20%) or isolated areas of involvement with a history of trauma. This attests to the efficacy of the screening method chosen.

No comparison was done between the population used in this study and the general population. The only information available on the population was age, sex, race and place of enlistment. No information was available on socioeconomic group, education and dental I.Q.; and no radiographs for historical documentation were available. Hence, the results of this study need to be interpreted with these limitations in mind.

The overall prevalence of alveolar bone loss in this study was .26%. This is in agreement with Hew and Killoy (1979), who reported in their study of U.S. Air Force recruits

a prevalence of .255%. It is slightly higher than the prevalence of .15% reported by Kaslick and Chasens (1968) in U.S. Army recruits. However, Kaslick and Chasens (1968) felt they may have underestimated the prevalence in their study, because they looked at only mobility as an initial method for screening. In this study, mobility was a late finding, being evident only after extensive bone loss had occurred. It is also slightly lower than the .4% reported by Lacy and Brasher (1977) in U.S. Army recruits. The difference in prevalence found in this study and the latter study may be due to differences in populations studied. There was no information available on age, sex or race in the population studies by Lacy and Brasher (1977), so no comparison can be made with the population in the present study. Saxen (1980b) examined 8,096 Caucasian 16 year olds from Finland and reported a prevalence of 0.1%. The difference in the latter study and the present one can be accounted for. First, the latter studied a younger age group. It is possible that juvenile periodontitis may have begun in some of the patients in this group, but may not be clinically detectable by age 16 years. Second, the latter study eliminated 6 patients because they demonstrated excessive amounts of local irritants. The author is not clear on what she considers an excessive amount and studies, including this one, have shown more local irritants on teeth affected with juvenile periodontitis than unaffected teeth.

Third, the population studied was totally Caucasian. The present study shows a higher prevalence in Blacks than in Caucasians.

Kaslick and Chasens (1968) and Lacy and Brasher (1977) hypothesized that there might be a geographic difference in the prevalence of juvenile periodontitis for different areas of the United States. Both groups noticed a greater number of juvenile periodontitis cases in young adults from the Southwest. However, in both studies, no demographic information was available for the populations studied. The findings in this study suggest that there was no significant difference in prevalence among 7 geographic areas of the United States. The findings in this study, however, only reflect the population at the time of enlistment. No demographic information was available on the study population for times when possible contributory factors might be influential, such as birth, eruption of first molars, exfoliation of deciduous molars or onset of puberty.

#### B. Sex and Race

The population studied (young military recruits) is not representative of the total population or representative of the general population of similar age. The population studied (Table 5) was predominantly Caucasian (81.1%), male (85.7%) and less than 22 years of age (80.0%). It would not be meaningful to directly compare sex and race findings in

this study with results reported in other studies. To compensate for this problem, the prevalences of juvenile periodontitis for race and sex groups found in this study were compared to other studies.

Juvenile periodontitis has been seen more frequently in females than males (Table 4). The female to male ratio for the prevalence of juvenile periodontitis of 2.32/1 found in this study is in agreement with that reported by other authors. (Benjamin and Baer, 1967; Baer and Benjamin, 1974; Melnick et al., 1976; Manson, 1977; Hormand and Frandsen, 1979 and Burmeister et al., 1984) However, it is higher than the ratio of 1.05/1 reported by Hew and Killoy (1978). The higher female to male ratio for prevalence found in this study may reflect a change in the military female population between 1978 and the present time. This study, however, is in agreement with Hew and Killoy (1978), who reported a Black female to male ratio of 1.05/1 and a Caucasian female to male ratio of 1.19/1. Within racial groups this study found no significant difference between sexes or the prevalence of juvenile periodontitis for either Blacks or Caucasians.

Several studies have shown an increased prevalence of juvenile periodontitis in Blacks (Table 2). Previously reported ratios ranged from about 1/1 (Russell, 1957) to 8/1 (Kaslick and Chasens, 1968). The Black to Caucasian ratio for prevalence in this study was 16.13/1, higher than previously

reported. The higher ratio found in this study is probably due to differences in populations.

#### C. Radiographic, Clinical and Combined Type Patients

Combining Radiographic and Clinical Type patients into Combined Type patients caused the Type I (localized juvenile periodontitis) patients to disappear in the sample population. This is not surprising considering the age of the population sampled (17-21 years). Hormand and Frandsen (1979) reported that generalized juvenile periodontitis (Type III) was not found in 12-18 year olds, but 35% of the 26-32 year olds in their study with bone loss had generalized involvement. They speculated that initially there was localized involvement followed by involvement of other teeth. In this study, 63% of the patients, 17-21 years old, had generalized juvenile periodontitis (Type III) compared to 76% of the patients, 22-27 years of age. Since Hormand and Frandsen (1979) looked at radiographs only, this can be compared to the Radiographic groups in this study. In this study the distribution of Radiographic Types by age was: for 17-21 year olds; Type I - 19%, Type II - 48% and Type III - 33%; for 22-27 year olds; Type I - 14%, Type II - 38% and Type III - 48%. The percentage of Radiographic Type I and II cases decreased with age, while the percentage of Type III patients increased with age.

In a recent study, Saxen and Murtomaa (1985), using the same age groups and type of localization of bone loss as Hormand and Frandsen (1979), reported that, in patients with juvenile periodontitis aged 13-18 years, 66% demonstrated Type I and 16% demonstrated Type III involvement, while in patients aged 26-30 years, 5% showed Type I and 68% exhibited Type III involvement. The authors concluded that "juvenile periodontitis is one disease entity. It starts with bone destruction localized to first molars and/or incisors and develops, if not treated, to a more generalized form of the disease." This study lends support to this conclusion.

#### D. Effect of Age

In this study the percentage of teeth affected increased with age. In addition, the percentage of the population (prevalence) with Combined Type II (intermediate juvenile periodontitis) and Combined Type III (generalized juvenile periodontitis) involvement increased with age. This supports the hypothesis that in juvenile periodontitis more teeth become involved with age. (Hormand and Frandsen, 1979; Saxen and Murtomaa, 1985) There is a possibility that some patients in this study may have coincidentally had, at the time of the study, adult periodontitis. No data for direct age group comparison is available. However, an examination of Table 20 and Table 23 shows that the majority of the affected sites had alveolar bone loss of Type B (20-40%) or more. It

seems unlikely that adult periodontitis, being an insidious chronic disease, could be responsible for the severe bone loss seen in these young adults.

Juvenile periodontitis lesions have been reported to spontaneously become inactive, or another form of periodontitis may become superimposed. This clinical feature has been called "burnout" and was discussed by Waldrop (1984). It is impossible to evaluate this feature in a cross-sectional study of this type.

#### E. Plaque Index and Gingival Index

Historically, juvenile periodontitis has been described as being associated with minimal amounts of bacterial plaque and the amount of plaque not being commensurate with the amount of destruction present. (Baer, 1971; Baer and Benjamin, 1974; Manson, 1973; Manouchehr-Pour, 1979; Page and Schroeder, 1982 and Cogen, 1984) In this study a higher plaque index was found for affected sites compared to unaffected sites. This finding agrees with the results shown by Burmeister et al. (1984).

In addition, juvenile periodontitis patients have been described as having normal appearing gingiva. (Gottlieb, 1923; Thoma and Goldman, 1940; Tenenbaum, 1950 and Manson, 1973) A higher gingival index was found in this study for affected sites compared to unaffected sites. This agrees with the results shown by Burmeister et al. (1984).

On the basis of this study, one cannot rule out that minimal amounts of plaque and gingival inflammation may be findings in localized juvenile periodontitis. However, in this study, plaque and gingival inflammation were associated with intermediate and generalized juvenile periodontitis. This lends support to the hypothesis that bacterial plaque is the primary etiologic factor in juvenile periodontitis.

F. Alveolar Bone Loss

Juvenile periodontitis has been described as a molar-incisor disease and, in most reported cases of generalized juvenile periodontitis, the permanent first molars and incisors remain the most severely affected teeth. (Wannenmacher, 1938; Miller, 1941; Kaslick and Chasens, 1968; Baer, 1971; Baer and Benjamin, 1974; Hormand and Frandsen, 1979; Newman, 1981 and Burmeister et al., 1984) In both intermediate juvenile periodontitis and generalized juvenile periodontitis patients in this study, the most frequently and severely involved teeth were the first molars and central incisors. This lends support to the hypothesis that in juvenile periodontitis initial involvement includes first molars and incisors, with subsequent involvement of other teeth, and agrees with the results of Hormand and Frandsen (1979), Saxen (1980b) and Burmeister et al. (1984).

Three of the patients in this study (prevalence .02%) did not show increased involvement of first molars and incisors. These patients may have had rapidly progressive periodontitis. (Page et al., 1983)

The classic radiographic molar lesion has been described as vertical in nature, with the incisor bone loss being horizontal in nature due to lack of alveolar bone mass. (Yount, 1956; Baer, 1971; Baer and Benjamin, 1974; Manouchehr-Pour and Bissada, 1979 and Waldrop, 1984) This study reported a decrease in the percentage of affected teeth with angular bone loss from 26.0% in intermediate juvenile periodontitis cases to 15.5% in generalized juvenile periodontitis patients. This finding also suggests that bone loss may begin as angular but becomes more horizontal in nature with increased severity. The findings in this study may also reflect that the 3 patients with rapidly progressive periodontitis demonstrated horizontal bone loss.

The radiographic lesions in juvenile periodontitis have been frequently described as symmetrical or mirror image in pattern. (Kaslick and Chasens, 1968; Baer, 1971; Baer and Benjamin, 1974; Manson, 1977; Hormand and Frandsen, 1979; Newman, 1981; Page and Schroeder, 1982 and Burmeister et al., 1984) Of the 44 patients in this study, 22 (50%) demonstrated radiographic symmetry (mirror image pattern).

Generalized juvenile periodontitis patients (mean age 21.84 years) in this study had twice the average percentage of

bone loss on mesial and distal surfaces in both the maxillary and mandibular arches as patients with intermediate juvenile periodontitis (mean age 21.27 years). Since the average age was not statistically different, this appears to reflect a more rapid loss of alveolar bone in generalized juvenile periodontitis patients.

#### G. Bleeding on Probing

"Bleeding on probing has been shown to be indicative of an inflammatory lesion in connective tissue adjacent to junctional epithelium which is characterized by collagen degradation, reduction of epithelium adjacent to the tooth surface and an influx of inflammatory cells." (Greenstein, 1985) Juvenile periodontitis patients have frequently been described as having no clinical signs of inflammation or bleeding on probing. (Manson, 1973 and Manouchehr-Pour, 1979) Other authors have disagreed, stating that inflammation and bleeding on probing were early signs of juvenile periodontitis. (Wannenmacher, 1938; Russell, 1967 and Burmeister et al., 1984) Authors agree that there appears to be an increase in inflammation, plaque and bleeding on probing in patients with generalized juvenile periodontitis. (Ranney et al., 1981a; Page and Schroeder, 1982; Page et al., 1983 and Burmeister et al., 1984)

Affected sites in intermediate and generalized juvenile periodontitis patients in this study demonstrated

bleeding on probing (intermediate juvenile periodontitis - 43.3%, generalized juvenile periodontitis - 36.1%) more frequently than unaffected sites (intermediate juvenile periodontitis - 11.8%, generalized juvenile periodontitis - 13.4%). Although, on the basis of this study, one cannot rule out that bleeding on probing may be an uncommon finding in localized juvenile periodontitis, it does agree with the results reported by Burmeister et al. (1984) and lends support to the theory that more inflammation is present in affected sites in patients with intermediate and generalized juvenile periodontitis.

#### H. Mobility

Loosening and pathologic migration of the teeth have been considered early findings in juvenile periodontitis patients. (Gottlieb, 1923; Thoma and Goldman, 1939, 1940 and Tenenbaum, 1950) In contrast, Newman (1981) suggested that mobility was a late finding in juvenile periodontitis, following extensive bone loss. In this study, there was an increase in mobility in affected teeth in intermediate and generalized juvenile periodontitis patients as compared to unaffected teeth. However, since 91.5% of the affected teeth in this study demonstrated no mobility, it is felt that this is a coincidental finding and probably reflects the severity of the bone loss in these patients. On the basis of this study, mobility cannot be considered one of the early signs

of juvenile periodontitis. However, when mobility is present, severe bone loss should be suspected.

#### I. Furcation Invasion

Clinically, furcation invasion is an unusual finding in juvenile periodontitis. Mesial and distal tooth surfaces are usually the most severely affected, with furcations being involved only in advanced disease or when bone loss occurs in a generalized horizontal pattern. (Waldrop, 1984) None of the unaffected and only 20% of the affected molars in this study demonstrated radiographic evidence of furcation invasion. Since, by definition, an unaffected tooth precluded furcation invasion (< 20% bone loss), this finding is not surprising. The small number of affected molars (20%) that exhibited radiographic furcation invasion within this study is probably a low figure. No attempt at clinical diagnosis of furcation invasion was made.

#### J. Balancing Interferences

Prichard (1965) suggested that the early clinical signs of juvenile periodontitis (loosening and wandering of teeth and angular bone loss) were the result of occlusal traumatism. If this hypothesis were true, balancing interferences and mobility should be common findings associated with affected teeth. However, balancing interferences were an uncommon finding in this study,

being found in only 17 (1.7%) of 1024 teeth. In addition, vertical type bone loss was not associated with balancing interferences in this study. While only 17 teeth exhibited balancing interferences, 206 teeth demonstrated vertical type bone loss. In some cases occlusal trauma may be a secondary factor in the etiology of the bone loss; but, in these patients, it is not a primary factor.

K. Limitations

The limitations or deficiencies of this study include: no information was available for comparison between the population studied and the general population; use of clinical probing depth instead of attachment loss measurements; a younger age group was not available (11-16 years) for examination; radiographs were not available to document the time of onset of disease and furcation invasion was not diagnosed clinically. It is felt that these limitations did not significantly detract from the results of this study. However, the results need to be interpreted with these limitations in mind.

## VI. SUMMARY

Forty-four out of 16,658 U.S. Air Force basic trainees, aged 17-27 years, were identified as having alveolar bone loss consistent with a diagnosis of juvenile periodontitis. The overall prevalence was .26%. The prevalence of localized juvenile periodontitis was .03%, for intermediate juvenile periodontitis .08% and for generalized juvenile periodontitis .15%. There was no difference in the prevalence between 7 geographic areas of the United States.

There was a female to male ratio for prevalence of 2.32/1, a Black to Caucasian prevalence ratio of 16.13/1, a Black male to Caucasian male prevalence ratio of 20.67/1 and a Black female to Caucasian female ratio for prevalence of 6.68/1. Within racial groups, no significant difference was found between the Black female to Black male prevalence ratio or the Caucasian female to Caucasian male prevalence ratio.

The most frequently and severely affected teeth were the first molars, followed by the incisors. The least frequently and severely affected teeth were the cuspids. There was no difference in bone loss between maxillary and mandibular arches. Fifty percent of the patients showed symmetry or mirror image type bone loss between the right and left sides of the mouth. The percentage of teeth affected and the percentage of the population affected increased with age.

There was twice as much bone loss on affected teeth in generalized juvenile periodontitis patients as those with intermediate juvenile periodontitis. The majority of the patients in both groups exhibited horizontal type bone loss. However, the percentage of angular bone loss was higher in patients with intermediate juvenile periodontitis compared to patients with generalized juvenile periodontitis.

The affected teeth in both the intermediate and generalized juvenile periodontitis groups demonstrated more plaque, inflammation and bleeding on probing than unaffected teeth. Furcation invasion was seen radiographically on 20% of the affected molars. Mobility was an uncommon finding. Only 1.7% of the teeth in this study demonstrated balancing interferences.

**APPENDIX A**  
**Consent Form**

## CONSENT FORM

1. I hereby volunteer to participate as a test subject in this experimental study. The purpose of this study is to determine how many people in the U.S. Air Force have juvenile periodontitis and rapidly progressing periodontitis (two progressive diseases causing bone loss around teeth which may lead to the loss of some teeth), and to describe what is found in the histories of patients with these diseases.
2. As a participant in this study, I will undergo routine diagnostic procedures, including x-rays, to diagnose periodontal (gum and bone around teeth) disease and I will have my blood studied. I will also be asked questions about my medical history and dental history as well as my family's medical and dental history.
3. I understand that, as a participant in this study, I will need to have a sample of my blood drawn (one time). The blood sample will involve the puncture of a vein in my arm with a needle and the withdrawal of approximately 15 cc's (1 tablespoon) of blood. It has been explained to me that the visit to have blood drawn will last approximately 30 minutes.
4. Risks: I understand that some discomfort can be expected during the diagnostic procedures. I also understand that I may have some tenderness or bruising at the place that blood is taken from my forearm.
5. I understand that I may benefit from participating in this study by receiving information regarding my dental health. If I choose not to participate in this study, I understand that I will continue to be managed and treated in accordance with standard medical and dental practice.
6. I understand that my entitlement to medical care and/or compensation in the event of injury is governed by federal laws and regulations, and if I desire further information I may contact \_\_\_\_\_.
7. Records of my participation in this study may only be disclosed in accordance with federal law, including the Federal Privacy Act, 5 USC 552a, and its implementing regulations.
8. The decision to participate in this program is completely voluntary on my part. No one has coerced or intimidated me

into participating in this program. I am participating because I want to. Dr. \_\_\_\_\_ has adequately answered any and all questions I have about this study, my participation, and the procedures involved. I understand that Dr. \_\_\_\_\_ will be available to answer any questions I have about procedures throughout this study. Should I choose to withdraw, my medical condition will continue to be treated in accordance with acceptable standards of medical treatment. I also understand that the investigator of this study may terminate my participation in this study at any time if he believes this to be in my best interest.

\*

(VOLUNTEER'S SIGNATURE AND SSAN) \_\_\_\_\_ (DATE)  
(\*If patient is a minor and in the opinion of the attending physician the minor can understand his/her participation in the study, the minor should sign this line.)

(VOLUNTEER'S ADDRESS) \_\_\_\_\_

(PARENT'S OR GUARDIAN'S SIGNATURE AND SSAN) \_\_\_\_\_ (DATE)

(ADVISING PHYSICIAN'S SIGNATURE AND SSAN) \_\_\_\_\_ (DATE)

(WITNESS) \_\_\_\_\_ (DATE)  
(Must witness all signatures above)

Privacy Act of 1974 applies. DD Form 2005 filed in Clinical/Medical Records.

Title: The Prevalence of Juvenile Periodontitis and Rapidly Progressing Periodontitis in a Young Military Population.

**APPENDIX B**  
**Geographic Data**

POPULATION FROM GEOGRAPHIC ENLISTMENT AREA 1  
 (ALABAMA, FLORIDA, GEORGIA, MISSISSIPPI, NORTH CAROLINA,  
 SOUTH CAROLINA AND TENNESSEE)  
 BY AGE, SEX AND RACE

<u>SEX</u>	<u>AGE</u>	<u>17-21</u>	<u>%</u>	<u>22-27</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SEX</u>	<u>RACE</u>						
	Caucasian	1361	(51.8)	344	(13.1)	1705	(64.9)
Male	Black	425	(16.2)	98	( 3.7)	523	(19.9)
	Other	18	( 0.7)	7	( 0.3)	25	( 1.0)
Total Male		1804	(68.6)	449	(17.1)	2253	(85.7)
	Caucasian	176	( 6.7)	76	( 2.9)	252	( 9.6)
Female	Black	86	( 3.3)	36	( 1.4)	122	( 4.6)
	Other	1	(0)	1	(0)	2	(0)
Total Female		263	(10.0)	113	( 4.3)	376	(14.3)
Total Caucasian		1537	(58.5)	420	(16.0)	1957	(74.4)
Total Black		511	(19.4)	134	( 5.1)	645	(24.5)
Total Other		19	( 0.7)	8	( 0.3)	27	( 1.0)
Total		2067	(78.6)	562	(21.4)	2629	(100)

Sample Size n = 2629

SAMPLE FROM GEOGRAPHIC ENLISTMENT AREA 1  
 (ALABAMA, FLORIDA, GEORGIA, MISSISSIPPI, NORTH CAROLINA,  
 SOUTH CAROLINA AND TENNESSEE)  
 BY AGE, SEX, RACE AND PREVALENCE

	<u>SEX</u>	<u>AGE</u>	<u>17-21</u>	<u>PREVALENCE</u>	<u>22-27</u>	<u>PREVALENCE</u>	<u>TOTAL</u>	<u>PREVALENCE</u>
	<u>SEX</u>	<u>RACE</u>						
		Caucasian	0	(0)	0	(0)	0	(0)
Male		Black	4	(.94)	1	(1.02)	5	(.96)
		Other	0	(0)	0	(0)	0	(0)
	Total Male		4	(.22)	1	(.22)	5	(.22)
		Caucasian	1	(.57)	0	(0)	1	(.40)
Female		Black	0	(0)	1	(2.78)	1	(.82)
		Other	0	(0)	0	(0)	0	(0)
	Total Female		1	(.38)	1	(.88)	2	(.53)
	Total Caucasian		1	(.07)	0	(0)	1	(.05)
	Total Black		4	(.78)	2	(1.49)	6	(.93)
	Total Other		0	(0)	0	(0)	0	(0)
	Total		5	(.24)	2	(.36)	7	(.27)

Sample Size n = 7

POPULATION FROM GEOGRAPHIC ENLISTMENT AREA 2  
 (CONNECTICUT, WASHINGTON D.C., DELAWARE, KENTUCKY, MASSACHUSETTS,  
 MAINE, MARYLAND, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, OHIO,  
 PENNSYLVANIA, RHODE ISLAND, VIRGINIA, VERMONT, WEST VIRGINIA)  
 BY AGE, SEX AND RACE

<u>SEX</u>	<u>AGE</u>	<u>17-21</u>	<u>%</u>	<u>22-27</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SEX</u>	<u>RACE</u>						
	Caucasian	3432	(59.8)	721	(12.4)	4153	(71.2)
Male	Black	576	( 9.9)	164	( 2.8)	740	(12.7)
	Other	63	( 1.1)	15	( 0.3)	78	( 1.3)
Total Male		4071	(69.8)	900	(15.4)	4971	(85.2)
	Caucasian	506	( 8.7)	142	( 2.4)	648	(11.1)
Female	Black	133	( 2.3)	65	( 1.1)	198	( 3.4)
	Other	14	( 0.2)	1	(0)	15	( 0.3)
Total Female		653	(11.2)	208	( 3.6)	861	(14.8)
Total Caucasian		3938	(67.5)	863	(14.8)	4801	(82.3)
Total Black		709	(12.2)	229	( 3.9)	938	(16.1)
Total Other		77	( 1.3)	16	( 0.3)	93	( 1.6)
Total		4724	(81.0)	1108	(19.0)	5832	(100)

Sample Size n = 5832

SAMPLE FROM GEOGRAPHIC ENLISTMENT AREA 2  
 (CONNECTICUT, WASHINGTON D.C., DELAWARE, KENTUCKY, MASSACHUSETTS,  
 MAINE, MARYLAND, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, OHIO,  
 PENNSYLVANIA, RHODE ISLAND, VIRGINIA, VERMONT, WEST VIRGINIA)  
 BY AGE, SEX, RACE AND PREVALENCE

	<u>AGE</u>	<u>17-21</u>	<u>PREVALENCE</u>	<u>22-27</u>	<u>PREVALENCE</u>	<u>TOTAL</u>	<u>PREVALENCE</u>
<u>SEX</u>	<u>RACE</u>						
Male	Caucasian	1	( .03)	2	( .28)	3	( .07)
	Black	4	( .69)	5	(3.05)	9	(1.22)
	Other	0	(0)	1	(6.67)	1	(1.28)
Total Male		5	( .12)	8	( .89)	13	( .26)
Female	Caucasian	2	( .40)	0	(0)	2	( .31)
	Black	2	(1.50)	2	(3.08)	4	(2.02)
	Other	0	(0)	0	(0)	0	(0)
Total Female		4	( .61)	2	( .96)	6	( .70)
Total Caucasian		3	( .08)	2	( .23)	5	( .10)
Total Black		6	( .85)	7	(3.06)	13	(1.39)
Total Other		0	(0)	1	(6.25)	1	(1.08)
Total		9	( .19)	10	( .90)	19	( .33)

Sample Size n = 19

Includes 2 patients not clinically examined.  
 Panorex Only.

POPULATION FROM GEOGRAPHIC ENLISTMENT AREA 3  
 (IOWA, ILLINOIS, INDIANA, MICHIGAN, MINNESOTA, NORTH DAKOTA,  
 NEBRASKA, SOUTH DAKOTA AND WISCONSIN)  
 BY AGE, SEX AND RACE

<u>SEX</u>	<u>RACE</u>	<u>AGE</u>	<u>17-21</u>	%	<u>22-27</u>	%	<u>TOTAL</u>	%
Male	Caucasian	1790	(63.3)		429	(15.2)	2219	(78.4)
	Black	172	( 6.1)		46	( 1.6)	218	( 7.7)
	Other	29	( 1.0)		7	( 0.2)	36	( 1.3)
Total Male		1991	(70.4)		482	(17.0)	2473	(87.4)
Female	Caucasian	243	( 8.6)		76	( 2.7)	319	(11.3)
	Black	26	( 0.9)		8	( 0.3)	34	( 1.2)
	Other	2	( 0.1)		2	( 0.1)	4	( 0.1)
Total Female		271	( 9.6)		86	( 3.0)	357	(12.6)
Total Caucasian		2033	(71.8)		506	(17.9)	2538	(89.7)
Total Black		198	( 7.0)		54	( 1.9)	252	( 8.9)
Total Other		31	( 1.1)		9	( 0.3)	40	( 1.4)
Total		2262	(79.9)		569	(20.1)	2830	(100)

Sample Size n = 2830

SAMPLE FROM GEOGRAPHIC ENLISTMENT AREA 3  
 (IOWA, ILLINOIS, INDIANA, MICHIGAN, MINNESOTA, NORTH DAKOTA,  
 NEBRASKA, SOUTH DAKOTA AND WISCONSIN)  
 BY AGE, SEX, RACE AND PREVALENCE

		<u>AGE</u>	<u>17-21</u>	<u>PREVALENCE</u>	<u>22-27</u>	<u>PREVALENCE</u>	<u>TOTAL</u>	<u>PREVALENCE</u>
<u>SEX</u>	<u>RACE</u>							
	Caucasian	0	(0)	0	(0)	0	(0)	
Male	Black	3	(1.74)	3	(6.52)	6	(2.75)	
	Other	0	(0)	0	(0)	0	(0)	
Total Male		3	( .15)	3	( .62)	6	( .24)	
	Caucasian	0	(0)	0	(0)	0	(0)	
Female	Black	0	(0)	1	(12.5)	1	(2.94)	
	Other	0	(0)	0	(0)	0	(0)	
Total Female		0	(0)	1	(1.16)	1	( .28)	
Total Caucasian		0	(0)	0	(0)	0	(0)	
Total Black		3	(1.52)	4	(7.40)	7	(2.78)	
Total Other		0	(0)	0	(0)	0	(0)	
Total		3	( .13)	4	( .70)	7	( .25)	

Sample Size n = 7

Includes 2 patients not clinically examined.  
 Panorex Only.

POPULATION FROM GEOGRAPHIC ENLISTMENT AREA 4  
 (IDAHO, MONTANA, OREGON, WASHINGTON AND WYOMING)  
 BY AGE, SEX AND RACE

	<u>SEX</u>	<u>AGE</u>	<u>17-21</u>	<u>%</u>	<u>22-27</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
	<u>SEX</u>	<u>RACE</u>						
		Caucasian	498	(64.8)	109	(14.2)	607	(78.9)
Male	Male	Black	7	( 0.9)	1	( 0.1)	8	( 1.0)
		Other	21	( 2.7)	6	( 0.8)	27	( 3.5)
	Total Male		526	(68.4)	116	(15.1)	642	(83.5)
		Caucasian	97	(12.6)	26	( 3.4)	123	(16.0)
Female	Female	Black	2	( 0.3)	1	( 0.1)	3	( 0.4)
		Other	1	( 0.1)	0	(0)	1	( 0.1)
	Total Female		100	(13.0)	27	( 3.5)	127	(16.5)
	Total Caucasian		595	(77.4)	135	(17.6)	730	(94.9)
	Total Black		9	( 1.2)	2	( 0.3)	11	( 1.4)
	Total Other		22	( 2.9)	6	( 0.8)	28	( 3.6)
	Total		626	(81.4)	143	(18.6)	769	(100)

Sample Size n = 769

SAMPLE FROM GEOGRAPHIC ENLISTMENT AREA 4  
 (IDAHO, MONTANA, OREGON, WASHINGTON AND WYOMING)  
 BY AGE, SEX, RACE AND PREVALENCE

<u>SEX</u>	<u>AGE</u>	<u>17-21</u>	<u>PREVALENCE</u>	<u>22-27</u>	<u>PREVALENCE</u>	<u>TOTAL</u>	<u>PREVALENCE</u>
<u>SEX</u>	<u>RACE</u>						
	Caucasian	0	(0)	0	(0)	0	(0)
Male	Black	0	(0)	0	(0)	0	(0)
	Other	0	(0)	0	(0)	0	(0)
Total Male		0	(0)	0	(0)	0	(0)
	Caucasian	0	(0)	0	(0)	0	(0)
Female	Black	0	(0)	0	(0)	0	(0)
	Other	0	(0)	0	(0)	0	(0)
Total Female		0	(0)	0	(0)	0	(0)
Total Caucasian		0	(0)	0	(0)	0	(0)
Total Black		0	(0)	0	(0)	0	(0)
Total Other		0	(0)	0	(0)	0	(0)
Total		0	(0)	0	(0)	0	(0)

Sample Size n = 0

POPULATION FROM GEOGRAPHIC ENLISTMENT AREA 5  
 (ARIZONA, CALIFORNIA, COLORADO, NEW MEXICO, NEVADA AND UTAH)  
 BY AGE, SEX AND RACE

<u>SEX</u>	<u>AGE</u>	<u>17-21</u>	<u>%</u>	<u>22-27</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SEX</u>	<u>RACE</u>						
	Caucasian	1130	(53.8)	240	(11.4)	1370	(65.2)
Male	Black	131	( 6.2)	38	( 1.8)	169	( 8.0)
	Other	185	( 8.8)	47	( 2.2)	232	(11.0)
	Total Male	1446	(68.8)	325	(15.5)	1771	(84.3)
	Caucasian	187	( 8.9)	47	( 2.2)	234	(11.1)
Female	Black	42	( 2.0)	14	( 0.7)	56	( 2.7)
	Other	27	( 1.3)	13	( 0.6)	40	( 1.9)
	Total Female	256	(12.2)	74	( 3.5)	330	(15.7)
	Total Caucasian	1317	(62.7)	287	(13.7)	1605	(76.4)
	Total Black	173	( 8.2)	52	( 2.5)	225	(10.7)
	Total Other	212	(10.1)	60	( 2.9)	272	(12.9)
	Total	1702	(81.0)	399	(19.0)	2101	(100)

Sample Size n = 2101

SAMPLE FROM GEOGRAPHIC ENLISTMENT AREA 5  
 (ARIZONA, CALIFORNIA, COLORADO, NEW MEXICO, NEVADA AND UTAH)  
 BY AGE, SEX, RACE AND PREVALENCE

	<u>AGE</u>	<u>17-21</u>	<u>PREVALENCE</u>	<u>22-27</u>	<u>PREVALENCE</u>	<u>TOTAL</u>	<u>PREVALENCE</u>
<u>SEX</u>	<u>RACE</u>						
	Caucasian	0	(0)	2	(.83)	2	(.15)
Male	Black	0	(0)	0	(0)	0	(0)
	Other	0	(0)	0	(0)	0	(0)
Total Male		0	(0)	2	(.62)	2	(.11)
	Caucasian	0	(0)	0	(0)	0	(0)
Female	Black	0	(0)	0	(0)	0	(0)
	Other	0	(0)	0	(0)	0	(0)
Total Female		0	(0)	0	(0)	0	(0)
Total Caucasian		0	(0)	2	(.70)	2	(.12)
Total Black		0	(0)	0	(0)	0	(0)
Total Other		0	(0)	0	(0)	0	(0)
Total		0	(0)	2	(.50)	2	(.10)

Sample Size n = 2

Includes 1 patient not clinically examined.  
 Panorex Only.

POPULATION FROM GEOGRAPHIC ENLISTMENT AREA 6  
 (ARKANSAS, KANSAS, LOUISIANA, MISSOURI, OKLAHOMA AND TEXAS)  
 BY AGE, SEX AND RACE

	<u>SEX</u>	<u>AGE</u>	<u>17-21</u>	<u>%</u>	<u>22-27</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
	<u>SEX</u>	<u>RACE</u>						
		Caucasian	1150	(53.9)	317	(14.9)	1467	(68.8)
Male		Black	205	( 9.6)	56	( 2.6)	261	(12.2)
		Other	97	( 4.5)	30	( 1.4)	127	( 6.0)
	Total Male		1452	(68.1)	403	(18.9)	1855	(87.0)
		Caucasian	153	( 7.2)	45	( 2.1)	198	( 9.3)
Female		Black	46	( 2.2)	13	( 0.6)	59	( 2.8)
		Other	19	( 0.9)	2	( 0.1)	21	( 1.0)
	Total Female		218	(10.2)	60	( 2.8)	278	(13.0)
	Total Caucasian		1303	(61.1)	362	(17.0)	1665	(78.1)
	Total Black		251	(11.8)	69	( 3.2)	320	(15.0)
	Total Other		116	( 5.4)	32	( 1.5)	148	( 6.9)
	Total		1670	(78.3)	463	(21.7)	2133	(100)

Sample Size n = 2133

SAMPLE FROM GEOGRAPHIC ENLISTMENT AREA 6  
 (ARKANSAS, KANSAS, LOUISIANA, MISSOURI, OKLAHOMA AND TEXAS)  
 BY AGE, SEX, RACE AND PREVALENCE

	<u>AGE</u>	<u>17-21</u>	<u>PREVALENCE</u>	<u>22-27</u>	<u>PREVALENCE</u>	<u>TOTAL</u>	<u>PREVALENCE</u>
<u>SEX</u>	<u>RACE</u>						
Male	Caucasian	1	( .09)	1	( .32)	2	( .14)
	Black	2	( .98)	2	(3.57)	4	(1.53)
	Other	0	(0)	0	(0)	0	(0)
Total Male		3	( .21)	3	( .74)	6	( .32)
Female	Caucasian	1	( .65)	0	(0)	1	( .50)
	Black	1	(2.17)	0	(0)	1	(1.69)
	Other	0	(0)	0	(0)	0	(0)
Total Female		2	( .92)	0	(0)	2	( .72)
Total Caucasian		2	( .15)	1	( .28)	3	( .18)
Total Black		3	(1.20)	2	(2.90)	5	(1.56)
Total Other		0	(0)	0	(0)	0	(0)
Total		5	( .30)	3	( .65)	8	( .38)

Sample Size n = 8

Includes 2 patients not clinically examined.  
 Panorex Only.

POPULATION FROM GEOGRAPHIC ENLISTMENT AREA 7  
 (ALASKA, HAWAII AND OTHER)  
 BY AGE, SEX AND RACE

		<u>AGE</u>	<u>17-21</u>	<u>%</u>	<u>22-27</u>	<u>%</u>	<u>TOTAL</u>	<u>%</u>
<u>SEX</u>		<u>RACE</u>						
		Caucasian	147	(40.4)	42	(11.5)	189	(51.9)
Male	Black		16	( 4.4)	1	( 0.3)	17	( 4.7)
	Other		72	(19.8)	41	(11.3)	113	(31.0)
	Total Male		235	(64.0)	84	(23.1)	319	(87.6)
		Caucasian	21	( 5.8)	4	( 1.1)	25	( 6.9)
Female	Black		3	( 0.8)	1	( 0.3)	4	( 1.1)
	Other		9	( 2.5)	7	( 1.9)	16	( 4.4)
	Total Female		33	( 9.1)	12	( 3.3)	45	(12.4)
	Total Caucasian		168	(46.2)	46	(12.6)	214	(58.8)
	Total Black		19	( 5.2)	2	( 0.5)	21	( 5.8)
	Total Other		81	(22.3)	48	(13.2)	129	(35.4)
	Total		268	(73.6)	96	(26.4)	364	(100)

Sample Size n = 364

SAMPLE FROM GEOGRAPHIC ENLISTMENT AREA 7  
 (ALASKA, HAWAII AND OTHER)  
 BY AGE, SEX, RACE AND PREVALENCE

	<u>SEX</u>	<u>AGE</u>	<u>17-21</u>	<u>PREVALENCE</u>	<u>22-27</u>	<u>PREVALENCE</u>	<u>TOTAL</u>	<u>PREVALENCE</u>
	<u>SEX</u>	<u>RACE</u>						
		Caucasian	0	(0)	0	(0)	0	(0)
Male	Male	Black	0	(0)	0	(0)	0	(0)
		Other	0	(0)	0	(0)	0	(0)
	Total Male		0	(0)	0	(0)	0	(0)
		Caucasian	0	(0)	0	(0)	0	(0)
Female	Female	Black	0	(0)	0	(0)	0	(0)
		Other	1	(11.1)	0	(0)	1	(6.25)
	Total Female		1	(3.03)	0	(0)	1	(2.22)
	Total Caucasian		0	(0)	0	(0)	0	(0)
	Total Black		0	(0)	0	(0)	0	(0)
	Total Other		1	(1.23)	0	(0)	1	(.75)
	Total		1	(.37)	0	(0)	1	(.27)

Sample Size n = 1

**APPENDIX C**  
**Patient Documentation Forms**

NAME: Bowden, Roy      SSN: 456-45-8741  
RACE: Caucasian      SEX: Male      PLACE OF ENLISTMENT: Texas

**SSN: 456-45-8741**

**SEX:** Male

## NT: Texas

**AGE: 20**

GI:.79 PLI:.85 CALCULUS INDEX:.17  
H=Horizontal A=Angular + =yes - =no

NAME: Brown, Antoine  
RACE: Black SEX: Male

**SSN: 088-54-0182**  
**PLACE OF ENLISTMENT: New York**

AGE: 19

P	B	L	T	B	F	C	X	R	A	G	I	P	C	I	H	F	D	P	L	B	F	C	X	R	A	G	I	P	C	I	H	F	D	P	L		
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
T	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
1	0	-	-	-	-	-	2	0	0	1	.75	2	2	2	2	2	0.00	-	-	3	3	3	3	2	3	-	-	+	-	-							
2	2	0	10	A	H	-	+	-	1	0	2	2	1	2.5	2	2	1	2	1.75	-	-	7	2	3	3	2	3	-	-	-	+	-					
3	6	30	A	H	H	+	+	-	2	1	2	2	1	75	1	2	1	1	1.25	-	-	8	6	7	8	2	3	-	-	-	+	-					
4	2	20	A	H	-	+	-	-	1	0	0	2	.75	1	2	0	1	1	1.00	-	-	5	5	5	5	3	5	-	-	+	-	-					
5	10	10	H	H	H	-	+	-	-	2	2	0	2	1.50	1	0	1	2	1.00	-	-	3	2	4	3	2	3	+	+	+	-	-					
6	0	-	-	-	-	-	-	-	1	0	0	2	.75	1	1	1	1	1	1.00	-	-	3	5	5	3	3	3	-	-	+	-	-					
7	-	10	-	H	-	-	-	-	2	0	1	1	1	0.00	1	0	1	1	.75	-	-	5	2	7	3	2	7	+	-	-	-	-					
8	30	10	A	H	-	-	-	-	2	0	1	1	1	0.00	1	0	1	1	.75	-	-	6	2	3	5	3	3	+	-	-	-	-					
9	10	0	H	-	-	-	-	-	1	0	1	1	.75	2	0	1	2	1.25	-	-	3	2	3	2	3	3	-	-	-	-	-						
10	0	0	-	-	-	-	-	-	1	0	1	1	.75	2	0	2	2	1.50	-	-	3	2	3	3	2	3	-	-	-	-	-						
11	0	0	-	-	-	-	-	-	1	1	1	1	1	1.00	1	1	1	2	1.25	-	-	3	2	3	3	2	3	-	-	-	-	-					
12	0	10	-	H	-	+	-	-	1	1	2	2	1.50	1	2	1	2	1.50	-	-	4	2	4	3	2	3	-	-	-	+	-						
13	10	20	H	H	-	+	-	-	2	1	0	2	1.25	2	1	1	1	1.25	-	-	3	6	8	3	2	3	-	-	+	-	+						
14	60	0	A	-	+	-	-	-	2	2	0	2	1.50	2	1	2	1	1.50	-	-	10	2	3	10	2	3	+	+	+	-	-						
15	0	0	-	-	-	-	-	-	2	1	1	2	1.50	1	2	1	2	1.50	-	-	3	2	6	3	3	4	+	-	+	-	-						
16	0	-	-	-	-	-	-	-	2	1	0	2	1.25	2	2	1	2	1.75	-	-	3	3	3	4	2	3	+	-	+	-	-						
17	-	0	-	-	-	-	-	-	1	0	2	1	1.00	2	2	2	2	2	2.00	-	-	3	2	3	3	3	3	-	-	+	-	-					
18	10	0	H	-	-	+	-	-	2	0	1	2	1.25	2	2	2	2	2	2.00	-	-	9	2	3	7	3	4	+	-	+	-	+					
19	30	30	A	A	A	+	+	-	2	0	1	2	1.25	2	1	2	2	1.75	-	-	1	9	2	8	8	5	10	-	-	+	-						
20	20	20	H	H	H	-	+	-	1	0	0	1	.50	2	0	2	2	1.50	-	-	3	2	8	2	3	6	-	-	-	-	-						
21	-	30	-	H	-	+	-	-	1	0	0	2	.75	1	0	1	2	1.00	-	-	3	2	8	3	6	3	-	-	+	-	-						
22	0	-	-	-	-	-	-	-	1	0	0	1	.50	1	1	1	1	1.00	-	-	3	2	3	3	2	3	-	-	-	-	-						
23	0	0	-	-	-	-	-	-	1	0	0	1	.50	1	1	1	1	1.00	-1	-	3	2	3	2	1	2	-	-	-	-	-						
24	0	0	-	-	-	-	-	-	1	0	0	1	.50	1	0	1	1	.75	-1	-	3	2	3	2	1	2	-	-	-	-	-						
25	0	0	-	-	-	-	-	-	1	0	0	1	.50	1	0	1	1	.75	-1	-	3	2	2	2	1	2	-	-	-	-	-						
26	0	0	-	-	-	-	-	-	1	0	0	1	.50	1	0	1	2	1.00	-1	-	2	2	3	2	1	2	-	-	+	-	-						
27	0	20	-	H	-	-	-	-	2	0	2	2	1.50	2	1	2	2	1.75	-	-	3	2	3	2	1	6	-	-	+	+	-						
28	20	40	H	A	-	+	-	-	2	2	2	2	2.00	2	0	2	2	1.50	-	-	3	2	8	3	5	4	-	+	+	+	+						
29	10	-	H	-	-	+	-	-	2	0	0	2	1.00	2	1	2	2	1.75	-	-	3	2	4	3	2	3	-	-	+	+	-						
30	30	30	A	A	A	-	+	-	1	1	2	2	1.50	2	0	2	2	1.50	-	-	6	2	8	7	7	10	-	-	+	-	-						
31	20	-	H	-	-	+	-	-	1	0	2	1	1.00	2	2	2	2	2.00	-	-	7	2	3	9	5	3	-	-	+	-	-						
32	-	-	-	-	-	-	-	-	1	0	1	1	.75	1	1	1	1	1.00	-	-	2	2	2	2	2	2	-	-	-	-	-						

GI:1.04 PLI:1.35 CALCULUS INDEX:.17  
H=Horizontal A=Angular +=yes -=no

NAME: Burke-McKenzi, Alejandro  
RACE: Hispanic SEX: Male

SSN: 081-62-3831  
PLACE OF ENLISTMENT: New York

AGE: 23

T	I	P	C	I	M	P	F	D	L	B	F	B	G	O		
I	E	O	A	N	M	R	A	P	R	P	H	E	E	C		
R	E	O	Y	S	R	R	A	O	O	P	T	E	G	N		
H	E	N	T	I	C	A	C	I	M	P	F	D	B	G		
M	I	D	M	I	F	I	D	T	M	F	I	D	B	C		
1	10	10	H	H	-	-	2	2	0	2	1.50	1	1	1	1	
2	20	20	H	H	-	-	+	2	1	0	2	1.25	2	2	2	
3	30	30	A	H	-	-	+	2	1	1	2	1.50	2	1	2	
4	0	10	-	H	-	-	-	2	1	1	2	1.50	2	0	1	
5	0	10	-	H	-	-	-	2	0	2	1	1.00	1	0	1	
6	0	10	-	H	-	-	+	-	2	0	2	1.00	1	0	1	
7	10	20	H	H	-	-	+	-	1	0	0	2	.75	1	0	1
8	10	10	H	H	-	-	-	1	0	0	1	.50	1	0	1	
9	10	0	H	+/-	-	-	-	2	0	0	1	.75	1	0	1	
10	10	10	H	H	-	-	+	-	1	0	0	2	.75	1	0	1
11	10	10	H	H	-	-	+	-	1	0	0	1	.50	1	0	1
12	10	0	H	-	-	-	-	2	0	2	1.00	1	0	1	1	
13	0	0	-	-	-	-	-	2	0	2	1.00	1	0	1	1	
14	20	20	A	A	+/-	+	+	2	2	1	2	1.75	1	1	2	
15	20	10	H	H	-	-	+	2	1	1	2	1.50	2	1	2	
16	10	0	H	-	-	-	-	2	1	1	2	1.50	2	2	2	
17	0	0	-	-	-	-	-	2	1	2	2	1.75	2	1	2	
18	0	0	-	-	-	-	+	2	0	2	2	1.50	2	2	2	
19	20	30	A	A	+/-	+	-	2	0	2	2	1.50	1	1	2	
20	0	0	-	-	-	-	-	2	0	1	2	1.25	1	1	1	
21	0	0	-	-	-	-	-	2	0	0	1	.75	1	1	0	
22	0	10	-	H	-	-	-	2	0	1	1	1.00	1	1	1	
23	0	0	-	-	-	-	-	1	0	1	1	.75	1	1	1	
24	0	0	-	-	-	-	-	1	0	0	1	.50	1	1	0	
25	0	0	-	-	-	-	-	1	0	1	1	.75	1	1	0	
26	0	0	-	-	-	-	-	1	0	1	1	.75	1	1	1	
27	0	0	-	-	-	-	-	2	0	1	1	1.00	1	1	1	
28	0	0	-	-	-	-	-	2	0	1	2	1.25	1	1	1	
29	0	10	-	H	-	-	+	2	0	1	2	1.25	2	1	2	
30	20	40	A	A	+/-	+	+	2	0	2	2	1.50	2	0	2	
31	10	10	H	H	-	-	-	2	0	2	2	1.50	2	1	2	
32	0	0	-	-	-	-	-	2	0	2	2	1.50	2	1	2	

GI:1.05 PLI:1.16 CALCULUS INDEX:1.17

H=Horizontal A=Angular +=yes -=no

NAME: Carter, Michael  
RACE: Black SEX: Male

SSN: 460-35-6441  
PLACE OF ENLISTMENT: Texas

**AGE: 18**

61:.82 PLI:.99 CALCULUS INDEX: 0  
H=Horizontal A=Angular +yes -no

NAME: Chadwick, Mitchell T. SSN: 415-02-4602  
 RACE: Caucasian SEX: Male PLACE OF ENLISTMENT: California AGE: 25

TIP DE OR TE MEN T	B E S SES T	L Y C IES S	TBL PNS C ES S	FC RR C IES T	X RA Y U S	C I N D E X U L S	G I T	P I	C I N D E X U L S	MOB ILI TY	PRO BING	PE FAC IAL	PRO TH AL	PR EP H I NG	SL E C T I N G	BL E G U D I N G	OI CN CT LE UR SF AE LR			
									M/F	D	M/L	D	M/F	D	M/L/D					
<b>MISSING</b>																				
2	30	20	H	H	-	-	+ -	2	1	1	1	1.25	2	2	1	2	1.75	1	-	
3	20	30	H	H	+	+	+	2	0	1	1	1.00	2	1	1	2	1.50	-	1	-
4	0	30	-	H	-	-	-	2	0	0	1	.75	1	1	1	1	1.00	-	-	-
5	20	20	H	H	-	-	-	1	0	0	1	.50	1	0	1	1	.75	-	-	
6	0	20	-	H	-	-	-	2	0	0	1	.75	1	1	0	1	.75	-	-	
7	20	30	H	H	-	-	-	2	0	0	1	.75	1	0	0	1	.50	-	-	
8	40	40	H	H	-	-	-	2	0	0	0	.50	1	0	1	1	.75	-	-	
9	40	30	H	H	-	-	-	1	0	1	1	.75	1	0	1	1	.75	-	-	
10	30	40	H	H	-	-	-	1	0	0	1	.50	1	0	1	1	.75	-	-	
11	10	10	H	H	-	-	-	2	0	0	1	.75	1	0	0	1	.50	-	-	
12	0	10	-	H	-	-	-	2	0	0	2	1.00	1	1	1	1	1.00	-	-	
13	10	30	H	H	-	+	-	1	0	0	1	.50	1	1	1	1	1.00	-	-	
14	20	30	A	H	+	+	-	2	0	0	1	.75	1	1	1	1	1.00	-	-	
15	20	30	H	H	-	+	-	2	1	1	2	1.50	2	2	1	2	1.75	1	-	
16	30	40	H	H	-	-	-	2	1	1	2	1.50	2	2	1	2	1.75	1	-	
17	30	-	H	-	-	-	-	2	1	1	1	1.25	2	2	2	2	2.00	-	1	
18	10	30	H	H	-	+	+	2	0	1	2	1.25	2	1	2	2	1.75	-	1	
19	10	20	H	H	-	+	+	-	2	0	2	2	1.50	1	1	1	1	1.00	-	-
20	10	10	H	H	-	+	+	-	2	0	2	2	1.50	1	0	1	1	.75	-	1
21	10	10	H	H	-	-	-	-	2	0	1	1	1.00	1	0	1	1	.75	-	1
22	0	0	-	-	-	-	-	-	2	0	2	2	1.50	2	0	2	2	1.50	-	1
23	50	10	H	H	-	-	-	-	2	0	2	2	1.50	2	2	2	2	2.00	1	2
24	80	70	H	H	-	+	-	-	3	3	2	3	2.75	3	3	3	3	3.00	3	3
25	<b>MISSING</b>																			
26	50	40	H	H	-	-	+	3	2	1	2	2.00	3	3	2	2	2.50	3	1	
27	10	10	H	H	-	-	+	3	2	1	2	2.00	3	3	2	2	2.50	3	1	
28	10	20	H	H	-	-	+	-	2	0	1	1	1.00	2	0	2	2	1.50	-	-
29	10	20	H	H	-	-	+	+	2	0	2	2	1.50	2	0	2	2	1.50	-	-
30	20	10	H	H	-	+	+	+	2	0	1	2	1.25	2	2	2	2	2.00	-	1
31	20	20	H	H	-	-	+	+	2	1	1	1	1.25	2	2	2	2	2.00	1	1
32	30	0	H	-	-	-	-	-	1	1	1	1	1.00	2	2	2	2	2.00	1	1

61:1.14 PLI:1.38 CALCULUS INDEX:2.17  
 H=Horizontal A=Angular +=yes -=no

NAME: Clark, Cheryl		SSN: 444-48-5003		PLACE OF ENLISTMENT: Oklahoma		AGE: 21																							
RACE: Caucasian		SEX: Female																											
T	P	C	I	M	P	D	F	P	D	L	B	F	B	L	O														
T	P	C	I	M	P	D	F	P	D	L	B	F	B	L	O														
TO TEN TH H	PER FON TEN H	BL D Y PNS SEES CATE S	LTBL SPNS CATE S	IC AR AY CUL LUS	IX AR AY CUL LUS	IN DE CX LUS	MO BI LITY	PRO BING	PRO THAL	PRO THAL	LI NGU AL	BL FAC IAL	BL FAC IAL	LI NGU AL	ON CT LE UR SA EL														
MID	MID	MID	MID	FLD	FLD	MFLD	FLD	MFD	MFD	MFLD	MFD	MFD	MFLD	MFD	MFLD														
1	IMPACTED																												
2	30	0	H	-	-	+ -	1	2	2	2	1.75	1	1	2	1.25	- -	-	5	3	3	4	2	3	- +	+ -	+ -	-		
3	30	40	H	H	+ +	+ +	2	0	2	1	1.25	1	1	0	2	1.00	- -	I	5	2	7	7	2	4	+ -	- -	+ -	-	
4	0	0	-	-	-	-	+ -	2	1	0	2	1.25	1	0	1	.50	- -	-	4	2	4	3	2	4	+ -	- -	-	-	
5	MISSING																												
6	10	10	H	H	-	-	-	2	0	0	1	.75	2	0	1	.75	- -	-	5	2	4	5	2	3	+ -	- -	-	-	
7	80	30	H	H	-	-	-	2	0	2	2	1.50	1	1	1	2	1.25	- -	I	7	2	4	6	4	3	+ -	+ +	-	-
8	70	30	H	H	-	-	-	2	2	2	2	2.00	2	1	1	1	1.25	- -	II	5	4	5	10	4	5	- +	+ -	-	-
9	70	60	H	H	-	-	-	2	0	2	2	1.50	1	1	1	1	1.00	- -	II	4	3	8	5	3	5	- -	+ +	-	-
10	40	40	H	H	-	-	-	2	0	1	2	1.25	1	1	0	1	.75	- -	II	8	3	2	6	3	3	+ -	-	-	-
11	0	10	-	H	-	-	-	2	0	1	2	1.25	1	1	0	1	.75	- -	II	3	2	3	4	3	3	+ -	- -	-	-
12	MISSING																												
13	0	10	-	H	-	-	-	2	0	0	2	1.00	1	1	1	2	1.25	- -	I	5	3	5	3	3	5	- -	+ -	-	-
14	MISSING																												
15	20	0	H	-	-	-	+ -	2	0	0	2	1.00	2	2	1	2	1.75	I	-	6	4	3	5	3	3	+ -	- -	-	-
16	IMPACTED																												
17	IMPACTED																												
18	0	-	-	-	-	-	+ -	2	0	1	1	1.00	1	1	2	1	1.25	- -	-	4	5	3	5	2	3	- -	+ -	-	-
19	MISSING																												
20	0	0	-	-	-	-	-	2	0	1	2	1.25	1	0	1	1	.75	- -	I	4	2	3	4	3	4	- -	+ +	-	-
21	0	0	-	-	-	-	-	2	0	1	2	1.25	1	0	0	1	.50	- -	I	3	1	4	3	2	3	- -	+ -	-	-
22	0	0	-	-	-	-	-	1	0	2	2	1.25	1	0	0	1	.50	- -	I	3	2	3	3	2	3	- -	-	-	-
23	0	0	-	-	-	-	-	2	0	1	2	1.25	1	1	1	1	1.00	- -	I	3	2	3	3	2	3	+ -	+ -	-	-
24	60	0	H	-	-	-	-	1	0	0	2	.75	1	1	1	1	1.00	- I	I	10	2	4	10	4	3	- -	+ -	-	-
25	40	30	H	H	-	-	-	2	0	0	2	1.00	1	0	1	1	.75	- I	I	7	3	2	7	4	7	+ -	- -	+ -	-
26	30	10	H	H	-	-	-	2	0	2	2	1.50	1	1	1	1	1.00	- -	I	7	2	5	8	6	3	- -	+ +	-	-
27	10	10	H	H	-	-	-	2	0	1	2	1.25	1	0	1	1	.75	- -	I	5	2	4	3	2	3	+ -	+ +	-	-
28	0	0	-	-	-	-	-	2	0	0	2	1.00	1	0	0	1	.50	- -	-	4	2	3	4	2	4	+ -	- -	+ -	-
29	0	10	-	H	-	-	-	2	0	0	1	.75	1	0	0	1	.50	- -	I	4	2	3	4	3	3	- -	+ -	-	-
30	MISSING																												
31	0	-	-	-	-	-	-	2	1	0	1	1.00	1	1	0	1	.75	- -	-	5	2	2	5	3	3	+ -	+ -	-	-
32	IMPACTED																												

GI:1.20 PLI:.90 CALCULUS INDEX:.33  
 H=Horizontal A=Angular + =yes - =no

NAME: Edwards, Carl R.  
RACE: Black SEX: Male

SSN: 108-54-9570  
PLACE OF ENLISTMENT: New York

AGE: 22

T	P	B	L	TBL	F	C	X	C	G	I	P	C	I	M	P	D	F	P	D	L	B	F	B	L	OI			
G	E	R	O	YOO	UAR	A	R	A			T	CAL	IND	MOBIL	PROPTH	FACIAL	PROPTH	BLING	BLEED	BLIN	BLEED	BLIN	BLEED	BLIN	CH			
T	C	E	S	PNS	R	R	A	C			C	DEX	ITY	YING	THAL	AL	PTH	GU	ED	ED	GU	ED	GU	ED	CT			
H	E	S	EES	C	A	E	C	U			C	DEX	ITY	YING	THAL	AL	PTH	GU	ED	ED	GU	ED	GU	ED	LE			
E	N	T	ENT	T	I	O	N	S			S	US	US	US	US	US	US	US	US	US	US	US	US	US	UR			
M	I	D	M	I	D	M	F	I	D	T	M	F	I	D	T	F	I	M	F	I	D	M	F	I	AE			
1	0	0	-	-	-	1	0	0	1	.50	2	2	1	2	1.75	-	-	4	3	3	4	5	3	-	-	-		
2	10	0	H	-	+	-	1	0	0	.50	1	1	1	1	1.00	-	-	3	3	4	3	3	4	-	-	-		
3	50	0	A	-	+	-	2	0	1	2	1.25	1	0	0	1	.50	-	-	10	3	3	8	5	3	-	+	-	
4	10	10	H	H	-	-	1	0	1	.75	1	0	0	1	.50	-	-	2	2	5	3	2	4	-	-	-		
5	10	10	H	H	-	-	2	0	0	.75	1	0	0	1	.50	-	-	5	2	3	3	3	3	4	-	-		
6	10	10	H	H	-	-	0	0	0	.25	0	0	0	0	0	0	-	-	3	2	4	3	2	3	-	-		
7	30	20	H	H	-	-	1	0	0	.50	1	0	0	1	.50	-	-	4	2	3	4	2	3	-	-	-		
8	20	60	H	A	-	-	1	0	2	2	1.25	1	0	1	2	1.00	-	1	5	4	7	5	3	7	-	-		
9	80	30	A	H	-	-	2	0	2	2	1.50	1	0	1	1	.75	-	II	10	2	5	8	7	5	-	-		
10	40	50	H	A	-	-	2	0	2	2	1.50	1	0	1	1	.75	-	-	4	2	8	5	7	7	-	+	-	
11	20	0	H	-	-	-	2	0	1	0	.75	1	0	0	1	.50	-	-	5	2	3	3	2	4	-	-	-	
12	10	0	H	-	-	-	1	0	0	.50	1	0	0	1	.50	-	-	3	2	4	3	2	2	-	-	-		
13	10	0	H	-	-	-	2	0	0	.75	1	0	0	1	.50	-	-	4	2	6	3	2	3	-	+	-		
14	50	10	A	A	-	+	-	1	0	1	.75	1	0	0	1	.50	-	-	6	2	5	8	3	5	-	-	-	
15	0	0	-	-	+	-	1	1	0	.75	1	1	1	1	1.00	-	-	4	3	3	4	4	5	-	-	-		
16	0	0	-	-	-	-	2	2	0	2	1.50	2	2	1	2	1.75	-	-	3	4	-	5	3	3	-	-	-	
17	0	-	-	-	+	-	2	0	2	2	1.50	1	1	1	1	1.00	-	-	4	3	3	5	4	4	-	-	-	
18	30	0	A	-	+	-	2	0	1	2	1.25	2	1	2	2	1.75	-	-	4	3	4	10	3	5	-	-	-	
19	30	50	A	A	-	-	2	0	1	2	1.25	2	0	2	2	1.50	-	-	5	2	3	8	3	6	-	+	-	
20	10	30	H	H	-	-	1	1	1	2	1.25	1	0	1	1	.75	-	-	4	2	4	3	3	4	-	-	-	
21	10	60	H	A	-	-	1	1	1	2	1.25	1	0	1	1	.75	-	-	3	2	8	3	9	10	-	-	-	
22	10	10	H	H	-	-	1	0	0	.50	1	0	1	1	.75	-	-	3	2	3	3	2	3	-	-	-		
23	10	10	H	H	-	-	1	0	0	.50	1	0	1	1	.75	-	-	3	2	3	3	2	3	-	-	-		
24	10	10	H	H	-	-	1	0	0	.50	1	0	1	1	.75	-	1	-	3	2	3	3	1	3	-	-	-	
25	10	10	H	H	-	-	1	0	0	.50	1	0	1	1	.75	-	1	-	3	2	3	2	1	2	-	-	-	
26	10	20	H	H	-	-	1	0	0	.50	1	0	1	1	.75	-	1	-	3	2	3	2	1	2	-	-	-	
27	10	10	H	H	-	-	1	0	1	1	.75	1	0	1	1	.75	-	-	3	2	3	2	2	3	-	-	-	
28	10	10	H	H	-	-	1	0	1	1	.75	1	0	1	1	.75	-	-	3	2	3	3	2	4	-	-	-	
29	0	10	-	H	-	+	-	1	0	1	1	.75	1	0	1	1	.75	-	-	3	2	3	3	2	3	-	-	-
30	70	60	A	A	+	-	2	1	2	2	1.75	2	0	2	2	1.50	-	1	8	8	10	10	9	10	+	+	-	
31	10	10	H	H	-	+	-	2	1	1	2	1.50	1	0	1	1	.75	-	-	4	3	5	4	3	5	-	-	-
32	0	-	-	-	-	-	2	1	2	2	1.75	1	1	1	1	1.00	-	-	5	3	3	4	4	4	-	-	-	

GI:.94 PLI: .84 CALCULUS INDEX:.17  
H=Horizontal A=Angular +=yes -no

NAME: Ford, Theresa  
RACE: Black S

SSN: 163-48-5078

NAME: Ford, Thelma  
RACE: Black SEX: Female PLACE OF ENLISTMENT: S. Dakota

**AGE: 27**

GI:1.41 PLI:.80 CALCULUS INDEX: 0  
H=Horizontal A=Angular +zyes -zno

NAME: Gaskins, Arnell, Jr. SSN: 103-48-1037  
 RACE: Black SEX: Male PLACE OF ENLISTMENT: New York AGE: 26

TYPE DISEASE MENT	BLITZ SESSES T	TBL FIC CIES ATION	FIC AR Y S	C AL CUL US	IC IND EX US	I MO BIL ITY	PL I LUS	P CAL CUX	DF PRO OB ING	DF FAC THA L	PL PRO PH AL	FL PREG LING	FF PRO THU AL	BL BLEED ING	BL FAC IAL	BL LING UAL	DI CN CT LE UR SF AE LR								
M/D	M/D	M/D	M/F	L/D	T	M/F	L/D	T	F/L	M/F	D	M/L	D	M/F	D	M/L	D								
1	IMPACTED																								
2	40	-H	--+--	2	0	0	2	1.00	1	0	1	.50	--	-	4	2	4	7	2	5	+ - + - - - -				
3	30	40	HH	-+ +	2	1	1	2	1.50	1	1	0	1	.75	1	1	-	5	2	4	7	3	7	+ - + - - - -	
4	10	30	HH	-+ +	2	1	0	2	1.25	1	1	0	1	.75	1	-	-	5	3	5	5	3	5	+ - + - - - -	
5	40	30	HH	-+ +	2	0	1	2	1.25	2	0	0	1	.75	--	-	-	5	3	5	5	3	5	+ - + + - + -	
6	10	20	HH	-+ +	2	0	1	2	1.25	1	1	0	1	.75	1	-	-	3	3	5	4	3	7	+ - + - - + -	
7	20	20	HH	-+ +	2	0	1	2	1.25	1	0	0	1	.50	--	-	-	4	3	5	5	3	3	+ - + + - + -	
8	30	20	HH	- - +	1	0	2	2	1.25	1	0	0	1	.50	--	1	1	7	2	5	5	5	4	- - + - + - -	
9	20	20	HH	- - +	2	0	2	2	1.50	1	0	1	1	.75	--	-	-	7	2	5	5	3	5	- - + + + -	
10	20	20	HH	- - +	2	1	1	2	1.50	1	0	1	1	.75	--	-	-	6	2	5	4	3	5	+ - + + - + -	
11	10	20	HH	- - +	2	1	1	2	1.50	1	1	1	1	1.00	--	-	-	5	3	5	4	3	5	+ - + + - + -	
12	20	10	HH	- + +	2	0	0	2	1.00	1	0	0	1	.50	1	-	-	5	2	5	5	3	5	+ - + + - + -	
13	20	30	HH	- + +	2	1	1	2	1.50	1	1	0	1	.75	--	-	-	6	3	6	5	3	6	+ - + + - + -	
14	40	50	HH	- - +	2	0	1	2	1.25	1	1	0	1	.75	1	-	-	8	3	9	7	3	7	+ - - + - + -	
15	30	-	H	- - +	2	0	1	2	1.25	1	1	0	1	.75	--	-	-	7	3	3	5	4	3	- - + - + -	
16	IMPACTED																								
17	10	10	HH	- - +	2	0	1	2	1.25	1	1	1	1	1.00	1	-	-	5	4	5	4	3	3	- - + - + -	
18	10	30	HA	- + -	+	1	0	1	1	.75	1	1	1	1	1.00	-1	-	-	4	3	5	5	3	5	- - - - - -
19	MISSING																								
20	20	10	HH	- - -	2	2	0	2	1.50	1	0	0	1	.50	--	-	-	5	2	3	5	2	2	+ - + - + -	
21	10	10	HH	- - -	2	1	1	2	1.50	1	0	1	1	.75	-3	-	-	5	3	6	4	3	5	+ - + + - + -	
22	30	10	HH	- - +	2	0	1	2	1.25	1	0	1	1	.75	-1	-	-	3	2	4	3	3	4	- - + + - + -	
23	30	30	HH	- - +	2	1	1	2	1.50	1	0	1	1	.75	1	1	-	3	2	4	3	2	5	- - + + - + -	
24	30	30	HH	- - +	1	1	1	2	1.25	1	0	1	1	.75	1	2	-	3	2	4	3	2	3	- - - - + -	
25	30	30	HH	- - +	1	0	1	1	.75	1	0	1	1	.75	1	3	-	3	2	5	2	2	2	- - - - - -	
26	20	20	HH	- - +	2	1	1	1	1.25	1	0	1	1	.75	1	2	-	5	2	5	2	2	2	- - + - - -	
27	10	20	HH	- - +	1	0	1	2	1.00	1	0	1	1	.75	1	2	-	4	2	4	2	2	3	- - + - - -	
28	20	20	HH	- - +	2	1	1	2	1.50	1	0	1	1	.75	1	1	-	5	2	5	4	3	4	+ - + + - + -	
29	30	20	AH	- + -	+	2	1	1	1	1.25	1	0	1	1	.75	-1	-	-	5	2	5	3	2	3	+ - - - - -
30	30	80	HA	- + +	+	2	0	1	2	1.25	1	0	1	1	.75	-1	-	-	5	3	7	5	3	7	- - + + - + -
31	40	30	HH	- + +	2	0	1	2	1.25	1	0	1	1	.75	-1	-	-	8	3	5	7	5	6	+ - + + - + -	
32	20	10	HH	- - -	2	2	1	2	1.75	2	2	1	2	1.75	-1	-	-	4	7	5	5	3	5	+ - + + - + -	

GI:1.28 PLI: .77 CALCULUS INDEX:2.33  
 H=Horizontal A=Angular +yes -no

NAME: Harrison, Warren P.  
RACE: Black  
SEX: Male

SSN: 331-52-6981  
PLACE OF ENLISTMENT: Illinois

AGE: 26

TIP D E R C E N T	B O O S E S E N T	L Y U R C I A T I O N	TBL PNS RRA CIE ATI ON	F U R R Y C U S	C X X A L U S	G I L U S	P I L U S	C A L C U X U S	M O B I L I T Y	P R O B I T H I N G	F A C I T H I N G	P R O P T H I N G	L I N G U A L	B F A C I T H I N G	B L I N G U A L	O I C N C T E L E R S F A E L R																					
MID	MID	MID	MIF	LID	T	MIF	LID	T	FIL	MIF	D	MIL	D	MIF	D	MIL	D	MIL																			
1	40	20	H	H	-	-	-	-	-	2	1	0	2	1.25	2	2	1	2	1.75	-	-	3	2	3	5	3	3	-	-	-	-	-	-				
2	20	20	H	H	-	-	-	-	-	2	1	0	2	1.25	1	2	1	2	1.50	1	-	-	5	3	4	5	2	5	+	-	-	-	-	-	-		
3	30	50	H	H	-	-	-	-	-	2	1	1	2	1.50	1	2	1	2	1.50	1	1	-	5	5	8	6	2	5	+	-	-	-	-	-	-		
4	20	20	H	H	-	-	-	-	-	2	2	1	2	1.75	1	2	1	1	1.25	1	-	-	4	2	7	5	2	5	+	+	-	-	-	-	-		
5	30	10	H	H	-	-	-	-	-	2	1	1	2	1.50	2	2	1	1	1.50	1	1	-	4	2	3	6	2	5	-	-	+	-	-	-	-		
6	10	0	H	A	-	-	-	-	-	2	1	2	1	1.50	2	2	1	2	1.75	1	1	-	4	2	3	4	2	7	+	-	-	+	-	-	-		
7	20	20	H	H	-	-	-	-	-	1	1	0	2	1.00	1	1	1	1	1.00	1	-	-	4	2	5	3	2	4	-	-	-	-	-	-	-		
8	20	30	H	H	-	-	-	-	-	2	0	0	2	1.00	1	0	1	1	.75	1	1	-	6	3	7	6	2	6	-	-	+	-	-	-	-		
9	20	30	H	H	-	-	-	-	-	1	0	1	2	1.00	1	1	1	1	1.00	1	1	-	4	2	5	4	2	5	-	-	-	-	-	-	-		
10	30	20	H	H	-	-	-	-	-	2	2	1	2	1.75	2	2	1	2	1.75	1	-	-	6	5	5	5	2	5	+	-	+	-	-	-	-		
11	0	10	H	H	-	-	-	-	-	2	0	0	2	1.00	1	0	1	1	.75	1	1	-	5	3	6	4	2	4	+	-	-	-	-	-	-		
12	20	10	A	H	-	-	-	-	-	2	0	0	2	1.00	1	1	1	1	1.00	-	-	-	5	2	4	3	2	5	+	-	+	-	-	-	-		
13	20	10	H	H	-	-	-	-	-	2	1	0	2	1.25	1	2	1	1	1.25	1	-	-	5	2	4	4	2	4	+	-	+	-	+	-	-		
14	20	50	H	A	+	-	-	-	-	2	0	0	1	.75	2	2	1	2	1.75	1	-	-	4	2	8	3	2	10	+	-	-	+	-	-	-		
15	20	20	H	H	-	-	-	-	-	1	1	0	1	.75	2	2	1	2	1.75	1	-	-	2	6	4	3	3	8	-	-	-	-	-	-	-		
16	20	-	H	-	-	-	-	-	-	1	1	1	1	1.00	2	2	1	2	1.75	1	-	-	2	3	3	5	3	3	-	-	-	-	-	-	-		
17	MI	SS	1	N	6																																
18	10	0	H	-	-	-	-	-	-	2	0	1	2	1.25	2	2	2	2	2.00	-	-	-	2	2	3	5	4	3	-	-	+	-	+	-	-	-	-
19	10	10	H	H	-	-	-	-	-	2	0	2	1	1.25	1	1	1	2	1.25	-	1	-	3	2	4	4	3	5	+	-	+	-	+	-	-	-	
20	10	10	H	H	-	-	-	-	-	2	0	0	2	1.00	1	0	1	1	.75	-	1	-	3	2	5	4	3	6	-	-	+	-	+	-	-	-	
21	20	20	H	A	-	-	-	-	-	2	1	0	2	1.25	1	0	1	1	.75	-	1	-	5	2	5	5	2	5	+	-	-	+	-	-	-		
22	0	0	-	-	-	-	-	-	-	2	0	0	2	1.00	1	1	1	1	1.00	-	-	-	4	2	5	3	2	4	+	-	+	-	+	-	-	-	
23	10	10	H	H	-	-	-	-	-	2	1	0	2	1.25	2	1	1	2	1.50	1	-	-	5	2	4	3	2	3	+	-	+	-	+	-	-	-	
24	10	10	H	H	-	-	-	-	-	2	1	0	2	1.25	2	1	1	2	1.50	1	-	-	3	2	5	3	2	3	+	-	+	-	+	-	-	-	
25	10	20	H	H	-	-	-	-	-	2	1	0	2	1.25	1	1	2	1	1.25	1	-	-	3	2	3	3	2	3	-	-	-	+	-	-	-		
26	20	10	H	H	-	-	-	-	-	2	1	0	2	1.25	1	1	2	1	1.25	1	-	-	4	2	3	3	2	3	-	-	+	-	+	-	-	-	
27	0	10	-	H	-	-	-	-	-	2	0	0	2	1.00	1	1	2	2	1.50	-	-	-	3	2	4	3	2	3	+	-	-	+	-	-	-	-	
28	20	20	A	H	-	-	-	-	-	2	1	0	2	1.25	1	1	1	1	1.00	-	-	-	5	3	5	3	2	5	-	-	+	-	+	-	-	-	
29	10	20	H	H	-	-	-	-	-	2	0	0	2	1.00	1	1	1	1	1.00	-	-	-	5	2	5	5	2	5	-	-	+	-	+	-	-	-	
30	10	10	H	H	-	-	-	-	-	2	0	0	2	1.00	1	1	1	1	1.00	1	-	-	6	2	5	5	2	6	+	-	+	-	+	-	-	-	
31	10	10	A	H	-	-	-	-	-	2	2	0	2	1.50	1	2	1	1	1.25	1	-	-	6	3	7	6	3	5	+	+	+	-	+	-	-	-	
32	0	-	-	-	-	-	-	-	-	2	0	0	2	1.00	2	2	1	2	1.75	-	-	-	5	3	3	5	3	5	+	-	-	+	-	-	-	-	-

GI:1.19 PLI:1.35 CALCULUS INDEX:1.33

H=Horizontal A=Angular +=yes -=no

NAME: Horton, Phyliп SSN: 440-72-5260  
RACE: Caucasian SEX: Male PLACE OF ENLISTMENT: Oklahoma AGE: 24

GI:1.44 PLI:.86 CALCULUS INDEX:.16  
H=Horizontal A=Angular + =yes - =no

NAME: Johnson, William I. SSN: 220-64-7227  
 RACE: Black SEX: Male PLACE OF ENLISTMENT: Maryland

AGE: 25

	P	B	L	TBL	F	C	X	C	6	P	C	I	M	P	D	F	P	D	L	B	F	B	L	DI											
	O	F	D	YOO	F	C	X	C		T	A	N	O	R	E	P	R	O	P	E	F	E	L	CT											
	O	F	D	YOO	F	C	X	C		T	A	N	O	R	E	P	R	O	P	E	F	E	L	UR											
	H	E	E	S	E	C	A	R		S	C	U	L	S	U	C	E	U	P	G	E	C	S	AE											
	E	N	E	S	E	C	A	R		S	C	U	L	S	U	C	E	U	P	G	E	C	S	LR											
1	30	20	H	A	-	-	+	+	2	1	1	2	2.50	3	3	1	3	2.50	1	1	-	6	5	4	5	3	3	+	-	-	-	-	-		
2	0	20	-	H	+	+	+	+	2	1	1	2	2.50	1	1	1	2	1.25	1	1	-	5	3	5	4	3	5	-	-	-	-	-	-		
3	10	10	H	H	-	+	+	-	2	1	1	2	2.50	1	1	0	1	.75	1	1	-	6	3	5	5	3	4	+	-	-	-	-	-		
4	10	10	H	H	-	+	-	+	2	0	1	2	1.25	1	1	0	1	.75	-	1	-	5	2	5	6	4	5	+	-	-	-	-	-		
5	30	20	H	H	-	-	+	+	2	0	1	1	1.0	1	1	0	1	.75	-	1	-	5	2	5	5	4	5	+	-	-	-	-	-		
6	20	20	H	H	-	-	-	+	2	0	2	1	1.25	0	1	1	.75	-	1	-	6	2	6	5	4	6	-	-	+	+	-	-			
7	30	40	H	H	-	-	+	+	2	2	1	2	1.75	1	1	1	1	1.00	1	1	-	5	3	5	4	3	4	+	-	-	+	-	-		
8	40	30	H	H	-	-	+	+	2	0	1	2	1.25	1	0	1	1	.75	-	1	1	6	2	5	5	3	5	+	-	-	+	-	-		
9	30	30	H	H	-	-	+	+	2	0	1	2	1.25	1	0	1	1	.75	1	1	1	6	2	7	5	3	4	-	-	+	-	-	-		
10	40	40	H	H	-	-	+	-	2	0	1	2	1.25	1	0	1	1	.75	1	1	-	6	3	4	5	3	5	-	-	+	-	-	-		
11	20	20	H	H	-	-	+	-	2	0	1	2	1.25	1	0	1	1	.75	-	1	-	5	3	6	6	4	4	+	-	-	+	-	-		
12	10	20	H	H	-	-	+	-	2	0	1	2	1.25	1	0	1	1	.75	1	1	-	5	2	3	5	4	5	+	-	-	+	-	-		
13	0	10	-	H	-	-	+	+	2	1	1	2	1.50	1	0	1	1	.75	1	1	-	3	3	3	5	4	4	+	-	-	+	-	-		
14	MISSING																																		
15	20	0	H	-	-	-	+	-	2	1	1	2	1.50	1	0	1	1	.75	1	1	-	4	4	5	4	3	4	-	-	+	-	-	-		
16	MISSING																																		
17	SEVERE																																		
18	10	20	H	A	-	+	+	+	2	2	2	2	2.00	2	0	2	2	1.50	1	1	-	4	5	5	4	3	3	+	-	+	+	+	-		
19	20	10	H	H	-	+	+	+	2	0	1	2	1.25	1	0	1	1	.75	-	1	-	5	2	5	6	3	4	4	-	-	+	-	-		
20	10	10	H	H	-	-	+	+	1	1	1	1	1.00	1	0	1	1	.75	-	1	-	4	2	5	5	4	5	-	-	-	-	-	-		
21	10	20	H	H	-	-	+	+	2	1	1	2	1.50	1	0	1	1	.75	-	1	-	4	2	4	4	3	5	-	-	+	-	-	-		
22	30	30	H	H	-	-	+	-	2	1	2	2	1.75	2	0	2	2	1.50	-	2	-	4	2	3	2	2	3	+	-	+	+	-	-		
23	40	40	H	H	-	-	+	+	2	2	2	2	2.00	2	1	2	2	1.75	1	3	-	3	2	5	3	2	2	2	+	+	+	+	-	-	
24	40	50	H	H	-	-	+	+	2	2	2	2	2.00	2	2	2	2	2.00	2	3	1	4	2	2	3	3	3	+	-	+	+	+	-		
25	30	40	H	H	-	-	+	+	2	2	2	2	2.00	2	2	2	2	2.00	2	3	1	3	2	3	3	3	2	-	-	+	+	-	-		
26	30	30	H	H	-	-	+	+	2	2	2	2	2.00	2	1	2	2	1.75	2	3	1	2	2	2	3	2	2	2	-	-	+	+	-	-	
27	20	20	H	H	-	-	+	-	2	2	2	2	2.00	2	0	2	2	1.50	2	3	-	2	2	3	2	3	3	-	-	+	+	+	-		
28	30	20	H	H	-	-	+	+	2	1	1	2	1.50	2	1	2	2	1.75	-	2	-	2	2	2	3	3	4	-	-	+	-	-	-		
29	20	10	H	H	-	-	+	-	2	1	1	2	1.50	1	0	1	1	.75	-	2	-	3	2	3	3	3	3	+	-	-	-	+	-		
30	MISSING																																		
31	10	10	H	H	-	-	+	+	2	1	1	1	1.25	1	0	1	1	.75	-	1	-	2	3	3	3	3	4	+	-	-	-	-	-		
32	10	0	A	-	-	+	+	-	1	2	1	2	1.50	1	1	1	1	1.00	1	1	-	3	2	3	4	3	5	-	-	-	-	-	-		

61:1.51 PLI:1.13 CALCULUS INDEX:2.67  
 H=Horizontal A=Angular +yes -no

NAME: Kaniaupio, Lilelani    SSN: 575-13-2275  
 RACE: Oriental    SEX: Female    PLACE OF ENLISTMENT: Hawaii    AGE: 18

T	I	P	C	I	M	P	D	L	B	F	B	L	O		
E	O	YOO	U	A	R	R	A	P	R	P	T	G	N		
R	N	PNS	R	R	R	R	A	O	O	P	H	G	C		
C	E	S	E	C	I	E	C	O	P	F	O	L	I		
E	S	E	E	C	I	E	C	O	P	F	O	L	I		
H	E	E	E	C	I	E	C	O	P	F	O	L	I		
E	E	E	E	C	I	E	C	O	P	F	O	L	I		
N	E	E	E	C	I	E	C	O	P	F	O	L	I		
T	E	E	E	C	I	E	C	O	P	F	O	L	I		
M	D	M	D	M	D	M	D	M	D	M	D	M	D		
M	D	M	D	M	D	M	D	M	D	M	D	M	D		
1	IMPACTED														
2	10	0	H	-	-	+1	0	0	.50	1	0	0	.50		
3	10	10	A	H	-	+ -	1	1	0	1	.75	1	0	0	
4	0	0	-	-	-	-	1	0	0	1	.50	1	0	0	
5	0	20	-A	-	-	-	1	1	0	2	1.00	1	0	0	
6	10	0	H	-	-	-	1	0	1	1	.75	1	0	1	
7	30	20	H	H	-	-	2	2	0	2	1.50	2	2	1	
8	10	30	H	H	-	-	0	0	0	2	.50	1	0	1	
9	20	10	H	H	-	-	0	0	0	0	0	1	0	0	
10	10	10	H	A	-	-	0	0	0	0	0	1	0	0	
11	0	0	-	-	-	-	0	0	0	1	.25	1	0	0	
12	10	0	H	-	-	-	2	0	0	1	.75	1	0	0	
13	0	10	-H	-	-	-	2	0	0	1	.75	1	0	0	
14	30	20	AA	-	+ +	-	2	0	0	2	1.00	1	0	0	
15	0	0	-	-	+ +	-	2	0	0	1	.75	1	0	0	
16	IMPACTED														
17	IMPACTED														
18	0	0	-	-	-	+ -	1	0	1	1	.75	1	0	1	
19	60	0	A	-	-	+ +	3	0	3	1	1.75	2	0	2	
20	0	10	-H	-	-	-	1	1	1	3	1.50	1	0	1	
21	0	0	-	-	-	-	+ +	1	0	0	1	.50	1	0	
22	0	0	-	-	-	-	-	1	0	0	0	.25	1	0	0
23	0	0	-	-	-	-	-	1	0	0	1	.50	1	0	0
24	0	0	-	-	-	-	-	1	0	0	1	.50	-1	-	
25	0	0	-	-	-	-	-	1	0	0	1	.50	1	0	1
26	0	0	-	-	-	-	+ +	1	1	0	1	.75	-1	-	
27	0	0	-	-	-	-	-	1	0	1	1	.75	-1	-	
28	0	0	-	-	-	-	+ +	1	0	1	1	.75	-1	-	
29	0	30	-H	-	-	-	+ +	1	0	1	2	1.00	1	0	0
30	90	10	A	H	+ + +	-	+ +	2	0	2	1	1.25	1	0	1
31	10	0	A	-	-	-	-	0	0	1	1	.50	-	-	
32	IMPACTED														

GI:.72 PLI:.70 CALCULUS INDEX:.67  
 H=Horizontal A=Angular +=yes -=no

NAME: Langley, Angela SSN: 242-06-5056  
 RACE: Black SEX: Female PLACE OF ENLISTMENT: New York AGE: 20

T O T H E N C E S	P E R C E N T	B L I C E S	TBL YOO PNS EES	F U A R R A I E S	X C A R A Y L U S	G I	P I	C A N C U L E X U S	M O B I L I T Y	P D R O B I H G	F E P T H I G	P R O B I H G	D I N G U L A L	B F L E E D I N G	B L I N G U L A L	O I C N L T L E U R S F A E L R												
								M D M D	M D M D	F L D T	M F L D T	F L	M F	D	M L	D	M F	D	M L									
1	10	-	H	-	-	-	2	1	0	2	1.25	1	1	1	1	1.00	-	-	3	2	2	4	3	3	+ -	-	+ -	-
2	10	0	H	-	-	-	2	0	1	2	1.25	1	1	1	1	1.00	-	-	6	2	4	7	2	5	+ -	-	+ -	-
3	30	30	H	H	-	-	2	0	1	2	1.25	0	0	0	0	0	-	-	4	1	3	5	2	5	+ -	-	+ -	-
4	10	0	A	-	-	-	2	0	1	2	1.25	1	0	0	1	.50	-	-	3	2	4	3	2	4	- -	-	+ -	-
5	0	0	-	-	-	-	1	0	0	2	.75	1	0	0	1	.50	-	-	3	2	3	2	1	3	- -	-	-	+ -
6	0	0	-	-	-	-	2	0	0	0	.50	0	0	0	0	0	-	-	3	1	2	3	1	3	+ -	-	+ -	-
7	0	0	-	-	-	-	0	0	0	0	0	0	0	0	0	0	-	-	2	1	3	3	2	3	- -	-	-	-
8	0	0	-	-	-	-	0	0	0	0	0	0	0	0	0	0	-	-	2	1	2	2	2	3	- -	-	-	-
9	0	0	-	-	-	-	0	0	0	0	0	0	0	0	0	0	-	-	2	1	2	3	1	2	- -	-	-	-
10	0	0	-	-	-	-	0	0	0	0	0	0	0	0	0	0	-	-	2	1	2	3	1	2	- -	-	-	-
11	0	0	-	-	-	-	0	0	0	0	0	0	0	0	0	0	-	-	3	1	3	3	2	3	- -	-	-	-
12	0	0	-	-	-	-	1	0	2	2	1.25	1	0	1	1	.75	-	-	2	2	3	3	2	3	- -	-	+ -	-
13	0	0	-	-	-	-	1	0	1	2	1.00	1	0	1	1	.75	-	-	4	2	3	3	1	3	- -	-	+ -	-
14	0	0	-	-	-	-	2	0	1	2	1.25	1	0	1	1	.75	-	-	4	2	3	3	2	3	+ -	-	+ -	-
15	0	0	-	-	-	-	1	0	1	2	1.00	1	1	1	1	1.00	-	-	3	2	3	3	2	3	- -	-	-	+ -
16	0	0	-	-	-	-	1	0	1	1	.75	1	1	1	1	1.00	-	-	3	2	3	3	3	3	- -	-	-	-
17	0	-	-	-	-	-	2	1	1	1	1.25	1	1	1	1	1.00	-	-	3	3	3	5	2	3	+ -	-	-	-
18	0	0	-	-	-	-	2	1	1	2	1.50	1	0	1	1	.75	-	-	5	2	3	5	3	5	+ -	-	+ -	-
19	0	0	-	-	-	-	2	1	1	1	1.25	1	0	0	1	.50	-	-	3	2	5	4	3	5	+ -	-	+ -	-
20	0	0	-	-	-	-	1	0	0	1	.50	0	0	0	0	0	-	-	3	2	3	2	2	3	- -	-	-	-
21	0	0	-	-	-	-	1	1	0	1	.75	0	0	0	0	0	-	-	3	2	3	3	2	2	- -	-	-	-
22	0	0	-	-	-	-	2	0	0	2	1.00	0	0	0	0	0	-	-	2	1	2	3	1	3	- -	+ -	-	-
23	0	0	-	-	-	-	2	0	1	2	1.25	0	0	0	0	0	-	-	2	1	2	3	1	2	+ -	-	+ -	-
24	0	0	-	-	-	-	2	1	1	2	1.50	1	0	0	0	.25	-	-	3	1	2	3	1	3	+ -	-	+ -	-
25	0	0	-	-	-	-	2	0	1	2	1.25	1	0	0	0	.25	-	-	3	1	3	2	1	2	- -	+ -	-	-
26	0	0	-	-	-	-	2	0	1	2	1.25	0	0	0	0	0	-	-	3	1	3	2	1	2	- -	+ -	-	-
27	0	0	-	-	-	-	1	0	0	2	.75	1	0	1	1	.75	-	-	3	1	3	2	2	3	- -	+ -	-	-
28	0	0	-	-	-	-	2	0	1	2	1.25	0	0	0	0	0	-	-	3	1	3	3	2	6	- -	+ -	-	-
29	20	10	A	H	-	-	2	0	1	2	1.25	0	0	0	1	.25	-	-	5	2	4	7	3	5	+ -	+ -	+ -	-
30	30	20	H	H	-	-	2	0	1	2	1.25	0	1	0	0	.75	-	-	4	2	7	6	2	7	- -	+ -	+ -	-
31	10	0	H	-	-	-	1	0	1	2	1.00	1	0	1	1	.75	-	-	3	3	7	5	3	5	- -	-	-	+ -
32	0	-	-	-	-	-	2	1	1	1	1.25	1	1	1	1	1.00	-	-	6	3	3	5	5	5	+ -	-	-	-

GI:.93 PLI:.42 CALCULUS INDEX:.17  
 H=Horizontal A=Angular t=yes -no

NAME: Lunderman, Keenan, H. SSN: 302-64-4691  
RACE: Black SEX: Male PLACE OF ENLISTMENT: Ohio AGE: 23

GI:1.44 PLI:.38 CALCULUS INDEX: .33  
H=Horizontal A=Angular t=yes -=no

NAME: Mays, Lucy      SSN: 253-11-8154  
 RACE: Black      SEX: Female      PLACE OF ENLISTMENT: Georgia      AGE: 24

TIP	B	L	TBL	FIC	X	C	6	P	C	I	M	P	D	F	P	D	L	O	
DE	EE	SS	YOO	UAR	RAY	CA		AN	DEX	MOB	PRO	PE	PTH	PRO	PLI	FE	EL	CN	
RE	EE	SE	PNS	RAR	Y	CUL		LU	ILI	BTIAL	ACIAL	PTH	THAL	PTH	ING	FACIAL	INDIVIDUAL	CT	
H	E	E	S	S	A	C		L	U	G	U	U	U	U	U	U	U	UR	
I	N	T	A	T	S	S		U	U	U	U	U	U	U	U	U	U	SE	
M	D	M	D	M	F	L	D	T	M	F	L	D	T	F	M	F	D	LR	
1	0	0	-	-	+	-	-	2	0	2	2	1.50	1	1	1	1	1.00	-	-
2	0	0	-	-	+	-	-	2	1	0	2	1.25	1	1	1	1	1.00	-	-
3	40	0	A	-	+	-	-	2	1	0	2	1.25	1	0	1	1	.75	-	-
4	0	0	-	-	+	-	-	1	0	0	1	.50	1	0	1	1	.75	-	-
5	MISSING																		
6	0	-	-	-	-	-	-	2	0	0	1	.75	1	0	1	1	.75	-	-
7	0	10	-	H	-	-	-	1	1	0	2	1.00	1	1	1	1	1.00	-	-
8	0	0	-	-	-	-	-	1	1	1	1	1.00	1	0	1	2	1.00	-	-
9	0	0	-	-	-	-	-	1	1	1	1	1.00	1	0	1	1	.75	-	-
10	0	0	-	-	-	-	-	2	1	1	1	1.25	1	0	1	1	.75	-	-
11	0	0	-	-	-	-	-	1	0	0	1	.50	1	0	0	1	.50	-	-
12	MISSING																		
13	0	0	-	-	+	-	-	1	0	0	1	.50	1	0	0	1	.50	-	-
14	50	0	A	-	+	-	-	2	1	2	2	1.75	1	1	1	1	1.00	1	-
15	0	0	-	-	+	-	-	2	2	2	2	2.00	2	2	0	2	1.50	-	-
16	0	0	-	-	+	-	-	2	2	2	2	2.00	1	2	1	1	1.25	-	-
17	0	-	-	-	+	-	-	2	1	1	2	1.50	2	1	2	2	1.75	-	-
18	0	10	-	H	-	+	-	2	1	1	2	1.50	1	1	1	1	1.00	-	-
19	0	0	-	-	+	-	-	2	1	0	2	1.25	1	1	1	1	1.00	-	-
20	0	0	-	-	+	-	-	2	0	1	2	1.25	1	0	1	1	.75	-	-
21	MISSING																		
22	-	-	-	-	-	-	-	1	0	2	2	1.25	1	0	1	1	.75	-1	-
23	0	-	-	-	-	-	-	1	1	1	1	1.00	1	0	1	1	.75	-1	-
24	30	0	H	-	-	+	-	2	1	2	2	1.75	2	1	2	2	1.75	1	2
25	0	30	-	H	-	-	+	2	1	2	2	1.75	2	1	2	2	1.75	1	2
26	0	10	-	H	-	-	+	2	0	2	2	1.50	1	0	1	1	.75	-1	1
27	0	0	-	-	-	+	-	2	0	2	2	1.50	1	1	1	1	1.00	-1	-
28	MISSING																		
29	0	0	-	-	+	-	-	2	0	2	2	1.50	1	0	1	1	.75	-	-
30	40	0	H	-	-	+	-	2	0	2	2	1.50	1	1	1	1	1.00	-	-
31	0	30	-	H	-	-	+	2	0	1	2	1.25	1	1	1	1	1.00	-	-
32	0	0	-	-	+	-	-	2	1	0	1	1.00	1	1	1	1	1.00	-	-

G1:1.28 PLI:.96 CALCULUS INDEX:.67  
 H=Horizontal A=Angular +=yes -=no

NAME: Nettles, David      SSN: 149-70-3443  
 RACE: Black      SEX: Male      PLACE OF ENLISTMENT: New Jersey      AGE: 18

T	I	P	C	I	M	P	D	L	B	O
P	E	R	E	N	S	R	E	F	F	C
E	R	O	S	P	N	S	P	R	B	N
H	I	E	S	C	A	E	P	T	F	C
I	M	P	E	X	C	I	F	G	L	N
E	U	R	R	A	A	N	E	H	E	C
C	S	S	S	R	R	D	P	I	F	T
E	E	E	E	E	E	E	E	E	E	E
H	E	E	E	E	E	E	E	E	E	E
E	E	E	E	E	E	E	E	E	E	E
M	I	M	I	M	I	M	I	M	I	M
I	D	I	D	I	D	I	D	I	D	I
D	M	D	M	D	M	D	M	D	M	D
1	IMPACTED									
2	0	- - - - -	2	1	0	1	1.00	2	2	1
3	40	20	AA	- - + -	2	2	1	2	1.75	1
4	0	0	- - + -	2	2	1	2	1.75	1	1
5	0	0	- - - - -	2	2	1	2	1.75	1	1
6	0	0	- - - - -	2	1	2	2	1.75	1	1
7	30	0	H	- - + -	2	1	2	2	1.75	2
8	20	40	HH	- - + -	2	1	2	2	1.75	2
9	20	30	HH	- - + -	2	1	1	2	1.50	1
10	30	0	H	- - - - +	2	2	0	2	1.50	1
11	0	0	- - - - -	2	1	1	2	1.50	2	1
12	20	20	HH	- - - -	2	1	1	2	1.50	1
13	10	0	H	- - - -	2	2	1	2	1.75	2
14	30	20	AA	+ - - -	2	2	1	2	1.75	3
15	0	- - - - -	2	2	0	2	1	2	1.75	2
16	IMPACTED									
17	IMPACTED									
18	0	- - - - + -	2	1	1	2	1.50	2	2	2
19	40	20	AA	+ - - -	2	2	2	2	2	2
20	0	0	- - - - -	3	1	1	2	1.75	2	1
21	10	30	HA	- - - -	2	2	2	3	2.25	1
22	10	0	- - - - -	2	1	1	2	1.50	2	1
23	20	20	HH	- - - -	3	2	1	2	2.00	1
24	40	20	HA	- - + -	3	2	1	2	2.00	1
25	30	40	HA	- - + -	3	2	2	3	2.50	1
26	10	30	HA	- - - -	3	2	2	2	2.25	3
27	10	0	H	- - - + -	2	1	1	2	1.50	2
28	10	10	HH	- - + -	2	2	1	2	1.75	2
29	20	30	AH	- - - -	2	2	1	2	1.75	2
30	30	10	AA	+ + - -	2	2	1	2	1.75	2
31	0	- - - - -	2	2	0	2	1	2	1.50	2
32	IMPACTED									

61:1.75 PLI:1.70 CALCULUS INDEX:2.5  
 H=Horizontal A=Angular +=yes -=no

NAME: O'Boyle, Daniel      SSN: 191-56-2008  
 RACE:Caucasian      SEX: Male      PLACE OF ENLISTMENT:Pennsylvania      AGE: 23

T O P O R T I C E S H E N T	B L I D Y O U R C I A T E S I O N	T B L F C X C I C I E S T	6 I	P I	C I N D E E X U L	M O B I L I T Y	P R E F A C I B I L	P R E P T H I A L	P R E P L I N G	B F A C I A L	B L I N G U A L	O I C N C C T L E U R S R A L R
M I D	M I D	M I D	M I F I L D I T	M I F I L D I T	F I L	M I F I D	M I L D	M I F I D	M I L D	M I F I D	M I L D	O I C N C C T L E U R S R A L R
1	20	10	H H - - - + 1 0 0 1 .50	1 1 1 1 1.00	- - -	8 2 3 7 3 3 - - - - -						
2	40	20	H H - - - + 2 1 0 2 1.25	2 1 1 1 1.25	- - -	6 2 8 6 2 7 - - + + - -						
3	20	30	H H - + - + 1 0 0 2 .75	2 0 1 2 1.25	- - -	5 2 6 5 2 7 - - - - + -						
4	20	20	H H - - - + 2 0 0 2 1.00	2 0 1 2 1.25	- - -	5 2 5 5 2 7 - - - - + -						
5	20	10	H H - - - - 2 0 0 2 1.00	2 1 1 2 1.50	- - -	5 2 3 3 2 4 - - - - - -						
6	20	10	H H - - - - 2 1 0 2 1.25	1 0 0 1 .50	- - -	4 2 5 4 2 5 - - - - - -						
7	20	30	H H - - - - 2 0 0 2 1.00	1 0 0 1 .50	- - -	5 2 7 5 2 7 - - - - - -						
8	20	40	H A - - - - 2 0 0 1 .75	1 0 0 1 .50	- - -	5 2 3 5 3 3 - - + - + - -						
9	20	20	H H - - - - 2 1 1 2 1.50	1 0 0 1 .50	- - -	5 2 4 5 4 3 + - + + - -						
10	50	40	A H - - - - 2 1 1 2 1.50	1 0 1 1 .75	- - -	9 2 6 7 4 7 - - - - - -						
11	20	10	H H - - - - 2 1 2 2 1.75	1 0 1 1 .75	- - -	7 2 6 7 2 5 + - + + - -						
12	20	10	H H - - + + 2 1 1 2 1.50	1 0 0 2 .75	- - -	5 2 4 5 2 5 + - + + - +						
13	10	20	H H - - + + 2 0 1 2 1.25	1 1 0 2 1.00	- - -	4 2 6 5 2 6 + - + + - +						
14	20	30	H H - + - + 2 0 0 2 1.00	2 1 0 2 1.25	- - -	4 2 6 5 2 7 + - + + - +						
15	30	30	H H - + + + 2 1 0 2 1.25	2 2 1 2 1.75	1 - -	5 2 7 5 2 7 + - + + - +						
16	20	10	H H - - - - 2 0 1 2 1.25	2 2 1 2 1.75	- - -	6 2 4 6 3 3 + - + + - +						
17	0	0	- - - - - 2 1 1 1 1.25	2 1 1 2 1.50	- - -	5 4 5 7 4 6 + - - - - -						
18	20	10	H H - + + + 2 0 1 1 1.00	2 1 2 2 1.75	- - -	7 2 8 8 4 10 + - - + - +						
19	10	20	H H - + - - 2 0 2 2 1.50	2 1 2 2 1.75	- - -	5 2 7 4 3 7 + - - + - +						
20	MI	SS	I M 6									
21	10	10	H H - - - - 1 0 1 2 1.00	1 0 1 1 .75	- - -	3 2 10 2 3 4 - - - - -						
22	10	10	H H - - - - 1 0 0 1 .50	1 0 0 1 .50	1 1 -	3 2 3 3 2 2 - - - - -						
23	0	0	- - - - - 1 0 1 1 .75	1 0 1 1 .75	1 2 -	4 2 4 3 2 4 - - - - -						
24	10	10	H H - - - - 2 1 2 2 1.75	1 0 1 1 .75	1 2 -	5 3 4 3 2 3 - - - + - +						
25	10	10	H H - - - - 2 0 2 2 1.50	1 1 1 1 1.00	1 2 -	4 2 3 3 2 3 - - - + - +						
26	0	10	- H - - - - 2 0 2 1 1.25	1 0 1 1 .75	1 2 -	3 2 3 3 2 3 - - - - -						
27	10	-	H - - - - - 1 0 0 1 .50	1 0 1 1 .75	1 -	6 2 3 5 2 3 - - - - -						
28	0	0	- - - - - + 2 0 0 2 1.00	1 0 0 1 .50	- - -	3 2 4 3 2 4 - - + + - +						
29	10	10	H H - + + + 2 0 1 2 1.25	1 0 0 2 .75	- - -	4 3 5 5 3 5 - - - + - +						
30	10	20	H H - + - + 2 0 0 2 1.00	2 1 1 1 1.25	- - -	5 3 6 5 2 7 + - + + - +						
31	10	10	H H - + - - 2 0 1 2 1.25	2 0 1 2 1.25	- - -	6 3 6 7 3 7 - - - + - +						
32	0	0	- - - - - 2 2 2 2 2.00	2 2 2 2 2.00	- - -	6 4 5 7 4 6 + + - + - +						

GI:1.16 PLI:1.04 CALCULUS INDEX:.67  
 H=Horizontal A=Angular +=yes -=no

NAME: Odoo, Timothy, L. SSN: 442-72-8745  
 RACE: Black SEX: Male PLACE OF ENLISTMENT: Texas AGE: 24

T	P	B	L	TBL	F	C	X	C	6		P	C	I	M	P	D	F	P	D	L	B	F	B	L	O	C	N	C	T	LE	UR	SF	AE	LR	
H	E	E	O	YOD	U	R	A	R		I		A	N	D	OB	PT	SH	FA	PR	TH	LI	EE	FA	ED	BL	IN	G	CH	CT	LE	UR	SF	AE	LR	
H	E	E	O	NS	R	R	A	R		I		A	N	D	OB	PT	SH	FA	PR	TH	LI	EE	FA	ED	BL	IN	G	CH	CT	LE	UR	SF	AE	LR	
1	20	20	H	H	-	-	-	-	1	1	0	1	.75	2	2	1	2	1.75	-	-	4	3	3	5	2	3	-	-	-	-	-	-			
2	30	20	H	H	-	-	-	-	+1	1	0	2	1.00	1	1	0	1	.75	-	-	5	2	4	5	2	3	-	-	-	-	+	-			
3	30	20	H	H	+	+	-	-	-	1	0	0	2	.75	1	1	0	1	.75	-	-	4	2	4	4	2	5	-	-	-	-	-	+	-	
4	20	20	H	H	-	-	-	-	-	1	1	0	1	.75	1	1	0	1	.75	-	-	3	2	4	4	2	3	-	-	-	-	-	-		
5	MISSING																																		
6	20	10	H	H	-	-	-	-	-	1	0	0	1	.50	1	0	0	1	.50	-	-	3	1	4	3	2	5	-	-	-	-	-	-		
7	20	20	H	H	-	-	-	-	-	1	0	1	1	.75	1	0	1	1	.75	-	-	3	2	3	4	2	3	-	-	-	-	-	-		
8	10	20	H	H	-	-	-	-	-	2	0	1	1	1.00	1	0	1	1	.75	-	-	4	2	4	4	3	4	+	-	-	-	-	-		
9	10	10	H	H	-	-	-	-	-	2	0	1	1	1.00	1	0	1	1	.75	-	-	3	2	2	3	2	2	+	-	-	-	-	-		
10	10	10	H	H	-	-	-	-	-	1	0	0	1	.50	1	0	1	1	.75	-	-	3	2	3	3	2	2	-	-	-	-	-	-		
11	0	10	-	H	-	+	-	-	-	1	0	0	1	.50	1	1	0	1	.75	-	-	3	2	5	3	3	3	3	-	-	-	-	-	-	
12	MISSING																																		
13	0	0	-	-	+	-	-	-	-	2	0	0	1	.75	1	1	0	1	.75	-	-	4	2	4	3	3	4	-	-	+	-	-	-		
14	10	40	H	A	+	+	-	-	-	2	0	0	1	.75	1	1	0	1	.75	-	-	3	2	7	4	2	7	-	-	+	-	-	-		
15	30	20	H	H	-	+	+	-	-	2	0	0	1	.75	1	1	1	1	1.00	-	-	5	2	5	7	2	6	-	-	+	-	-	-		
16	50	20	H	H	-	-	-	-	-	2	1	0	1	1.00	2	2	1	2	1.75	-	-	5	2	3	6	2	3	-	-	+	-	-	-		
17	MISSING																																		
18	10	30	H	H	-	+	-	-	-	2	0	1	1	1.00	2	1	2	2	1.75	1	-	3	3	5	3	3	7	+	-	+	-	-	-		
19	MISSING																																		
20	MISSING																																		
21	10	10	H	H	-	-	-	-	-	2	0	0	1	.75	1	0	0	1	.50	-	-	3	2	2	3	3	3	+	-	-	-	-	-		
22	20	10	H	H	-	-	-	-	-	2	0	0	2	1.00	1	0	0	1	.50	-	-	3	2	3	3	2	3	-	-	+	-	-	-		
23	30	20	H	H	-	+	+	-	-	2	1	1	2	1.50	1	0	1	1	.75	-1	-	3	2	4	3	2	3	-	-	+	-	-	-		
24	30	20	H	H	-	+	+	-	-	2	1	1	1	1.25	2	0	2	2	1.50	-2	-	3	2	4	3	2	2	+	-	-	-	-	-		
25	30	20	H	H	-	+	+	-	-	2	1	1	2	1.50	2	0	2	2	1.50	1	2	-	3	2	3	3	2	3	-	-	+	-	-	-	
26	30	30	H	H	-	+	+	-	-	2	1	1	2	1.50	2	1	2	2	1.75	-1	-	3	2	3	3	2	3	+	-	+	-	-	-		
27	10	0	H	-	-	+	-	-	-	1	0	1	1	.75	1	0	1	1	.75	-1	-	3	2	3	3	2	3	-	-	-	-	-	-		
28	0	10	-	H	-	-	-	-	-	1	0	0	1	.50	1	0	1	1	.75	-	-	3	2	3	3	2	3	-	-	-	-	-	-		
29	MISSING																																		
30	20	10	H	H	-	+	+	-	-	1	0	0	1	.50	1	-	1	1	.75	-	-	3	2	4	3	2	3	-	-	-	-	-	-		
31	10	10	H	H	-	-	-	-	-	1	1	1	1	1.00	2	2	1	2	1.75	-	-	3	3	4	4	3	4	-	-	-	-	-	-		
32	IMPACTED																																		

GI: .88 PLI: .99 CALCULUS INDEX: .67  
 H=Horizontal A=Angular +=yes -=no

NAME: Oliver, Eddie J  
 RACE: Black SEX: Male SSN: 263-73-7178  
 PLACE OF ENLISTMENT: Florida AGE: 18

TIP	B	L	TBL	F	C	X	C	6	P	C	I	M	P	D	F	P	D	L	B	F	B	L	O		
DE	E	O	YOD	U	R	A	A		I	C	IN	MO	PRO	PE	PT	PH	PT	ING	EEB	FAC	EEB	LE	CH		
OR	N	S	PNS	UR	R	Y	C		C	DE	BI	BI	THAL	PI	PH	TH	TH	ING	BB	IAL	BB	LE	CT		
ICE	E	S	EE	C	I	Y	C		C	EX	BI	BI	THAL	PI	PH	TH	TH	ING	BB	IAL	BB	LE	UR		
H	E	E	S	E	E	Y	C		C	EX	BI	BI	THAL	PI	PH	TH	TH	ING	BB	IAL	BB	LE	AE		
E	N	T	I	T	I	U	S		C	EX	BI	BI	THAL	PI	PH	TH	TH	ING	BB	IAL	BB	LE	LR		
M	I	D	M	I	D	M	F	L	D	I	T	M	F	L	D	I	M	F	D	M	I	D			
1	IM	PA	C	T	E																				
2	0	20	-	H	--	-	2	1	0	2	1.25	2	2	1	2	1.75	--	-	4	3	3	3	4	5	
3	60	30	AA	+/-	-	-	2	1	2	2	1.75	2	1	2	2	1.75	1	1	1	10	5	4	6	8	
4	0	10	-	H	--	-	2	0	1	2	1.25	2	0	2	2	1.50	--	-	5	2	5	3	2	6	
5	0	30	-	A	--	-	1	0	2	1	1.00	2	0	1	2	1.25	--	-	4	2	3	3	2	3	
6	0	0	-	--	-	-	2	0	0	1	.75	2	0	1	1	1.00	--	-	3	2	3	3	2	2	
7	40	10	H	H	--	-	2	0	1	2	1.25	2	0	1	2	1.25	--	-	9	2	3	10	5	4	
8	50	50	H	H	--	-	1	0	1	2	1.00	1	0	1	2	1.00	--	I	7	4	8	6	3	8	
9	MISS	ING																							
10	40	50	H	A	--	-	2	2	2	1	1.75	2	1	1	1	1.25	1	-	1	6	5	8	5	4	
11	0	0	-	--	-	-	1	0	0	1	.50	1	0	1	1	.75	--	-	3	2	3	3	2	3	
12	0	30	-	H	--	-	1	0	0	2	.75	1	0	1	1	.75	--	-	3	2	7	3	2	6	
13	40	10	A	H	--	-	2	0	0	1	.75	1	0	1	1	.75	--	-	8	2	4	8	2	3	
14	MISS	ING																							
15	0	-	--	--	-	-	2	0	1	1	1.00	2	1	2	2	1.75	2	-	-	3	3	3	5	3	5
16	IM	PA	C	T	E																				
17	IM	PA	C	T	E																				
18	0	-	--	--	-	-	1	1	1	1	1.00	2	2	1	2	1.75	--	-	5	2	4	5	3	5	
19	50	70	AA	+/-	-	-	2	1	2	2	1.75	2	2	2	2	2.00	1	1	I	8	8	8	10	3	5
20	0	0	-	--	-	-	1	0	1	2	1.00	1	1	1	1	1.00	--	-	3	2	4	3	2	10	
21	0	0	-	--	-	-	2	0	0	1	.75	1	1	1	1	1.00	--	-	3	2	3	3	2	3	
22	0	-	--	--	-	-	1	0	1	1	.75	1	1	1	1	1.00	--	I	3	1	3	2	2	3	
23	30	0	H	--	-	-	1	0	1	1	.75	1	1	1	1	1.00	--	I	3	2	3	2	2	2	
24	70	80	AA	--	-	-	2	1	1	2	1.50	2	2	2	2	2.00	2	3	III	5	4	7	4	2	8
25	30	0	H	--	-	-	1	2	0	1	1.00	2	2	1	2	1.75	2	1	-	3	2	3	3	1	2
26	0	0	-	--	-	-	1	2	0	1	1.00	2	2	1	2	1.75	1	1	-	3	2	3	2	1	2
27	0	0	-	--	-	-	1	1	0	1	.75	1	1	1	1	1.00	--	I	-	3	2	3	3	2	3
28	0	0	-	--	-	-	1	0	0	1	.50	1	1	1	1	1.00	--	-	3	2	3	3	2	2	
29	0	0	-	--	-	-	2	0	0	1	.75	1	0	1	1	.75	--	-	3	2	3	3	2	3	
30	MISS	ING																							
31	10	-	H	--	+	-	1	1	1	1	1.00	2	1	2	2	1.75	-	1	-	4	3	5	3	3	4
32	IM	PA	C	T	E																				

GI:1.02 PLI:1.3 CALCULUS INDEX: 2.17  
 H=Horizontal A=Angular +=yes -=no

NAME: Owens, William  
 RACE:Caucasian SEX: Male SSN: 013-54-5435  
 PLACE OF ENLISTMENT:Massachusetts AGE: 24

TIP	B	L	TBL	F	CIX	C	6	P	C	I	M	P	D	F	P	D	B	F	B	BL	OI	
OE	BO	YOO	FUR	RA	RA	A		PL	CAL	AN	MOS	PRO	PE	PH	PRE	DL	BLE	FA	BL	CN		
RR	NS	PNS	RUR	RAY	RAY	AL		CE	CE	TY	PRO	PTIAL	PH	PTH	PTH	ING	EDIAL	EDIAL	EDIAL	EDIAL	CT	
H	E	S	E	S	E	S		C	U	X	TY	PRO	PTIAL	PH	PTH	PTH	ING	EDIAL	EDIAL	EDIAL	AE	
IN	E	S	E	S	E	S		U	U	U	TY	PRO	PTIAL	PH	PTH	PTH	ING	EDIAL	EDIAL	EDIAL	LR	
ENT	E	S	E	S	E	S		U	U	U	TY	PRO	PTIAL	PH	PTH	PTH	ING	EDIAL	EDIAL	EDIAL		
	MID	MID	MID	MID	MID	MID		MID	MID	MID	MID	MID	MID	MID	MID	MID	MID	MID	MID	MID		
1	MISSING																					
2	30	10	HH	-	-	-	2	2	2	2	2.00	2	2	1	2	1.75	2	-	-	3	3	-
3	30	20	AH	-	-	-	2	2	2	2	2.00	2	2	1	2	1.75	1	-	-	3	2	4
4	20	20	AH	-	-	-	2	2	2	2	2.00	2	1	1	2	1.50	-	-	-	3	2	3
5	20	20	HH	-	-	-	2	2	2	2	2.00	2	2	1	2	1.75	-	-	-	3	2	3
6	0	10	-H	-	-	-	2	2	2	2	2.00	2	1	1	2	1.50	-	-	-	3	2	3
7	20	20	HH	-	-	-	2	2	2	2	2.00	1	1	1	2	1.25	-	-	-	3	2	3
8	10	20	HH	-	-	-	2	2	2	2	2.00	2	1	1	2	1.50	-	-	-	2	2	3
9	10	20	HH	-	-	-	2	2	2	2	2.00	2	1	2	2	1.75	-	-	-	2	2	3
10	20	20	HH	-	-	-	2	2	2	2	2.00	2	1	1	2	1.50	-	-	-	3	2	3
11	10	20	HH	-	-	-	2	2	2	2	2.00	2	1	1	2	1.50	-	-	-	3	2	3
12	20	20	HH	-	-	-	2	2	2	2	2.00	2	1	1	2	1.50	-	-	-	3	2	3
13	30	20	HH	-	-	-	2	2	2	2	2.00	2	1	1	2	1.50	-	-	-	3	2	4
14	20	20	HH	-	-	-	2	2	2	2	2.00	2	1	1	2	1.50	1	-	-	4	2	4
15	20	10	HH	-	-	-	2	2	2	2	2.00	2	2	1	2	1.75	2	-	-	4	3	4
16	MISSING																					
17	MISSING																					
18	20	10	HH	-	-	-	2	2	2	2	2.00	2	2	1	2	1.75	-	-	-	3	3	3
19	20	20	HH	-	-	-	2	2	2	2	2.00	2	1	1	2	1.50	-	-	-	3	3	4
20	20	20	HH	-	-	-	2	2	2	2	2.00	2	1	1	2	1.50	-	-	-	3	2	3
21	20	20	HH	-	-	-	2	2	2	2	2.00	2	2	2	2	2.00	1	-	-	3	2	2
22	10	20	HH	-	-	-	2	2	2	2	2.00	2	2	2	2	2.00	1	1	-	3	2	3
23	10	10	HH	-	-	-	2	2	2	2	2.00	2	1	2	2	1.75	1	1	-	3	2	4
24	10	10	HH	-	-	-	2	2	2	2	2.00	2	1	2	2	1.75	1	1	-	3	1	3
25	10	10	HH	-	-	-	2	2	2	2	2.00	2	1	2	2	1.75	1	1	-	2	2	3
26	10	10	HH	-	-	-	2	2	2	2	2.00	2	1	2	2	1.75	1	1	-	3	1	3
27	10	20	HH	-	-	-	2	2	2	2	2.00	2	1	2	2	1.75	-	1	-	4	2	4
28	20	20	HH	-	-	-	2	2	2	2	2.00	2	1	2	2	1.75	-	-	-	2	2	3
29	20	20	HH	-	-	-	2	2	2	2	2.00	2	1	1	2	1.50	-	-	-	3	2	3
30	20	20	HH	-	-	-	2	2	2	2	2.00	2	1	2	2	1.75	-	-	-	3	3	3
31	20	0	H	-	-	-	2	2	2	2	2.00	2	2	2	2	2.00	-	-	-	3	2	3
32	MISSING																					

G1:2.0 PLI:1.66 CALCULUS INDEX:1.17  
 H=Horizontal A=Angular +yes -no

NAME: Parker, Judy      SSN: 428-11-60890  
 RACE: Caucasian      SEX: Female      PLACE OF ENLISTMENT: Mississippi      AGE: 20

TIP PER CENT	BL OOD TYPE	TBL ORNS HCE	FIC PNS EES	X RAY CIES	CALC ULUS LUS	6 I	PLI	CALC ULUS	MO BILITY	PRO BING	DFAC TIAL	PRO BING	DEPH TH	LING UAL	B FAC IAL	BLE EDING	BL INGUAL	DI CTE UR SE AE LR	
MID	MID	MID	MIF	MIF	ID	T	MIF	ID	FIL	MIF	ID	MIF	ID	MIF	ID	MIF	ID	MIF	ID
1	-	-	-	-	1	0 0 1 .50	2 2 1 2 1.75	- -	-	3 2 2 3 2 3	- - - - -	-	-	-	-	-	-	-	
2	20	- H	-	-	2	0 0 2 1.00	1 2 1 2 1.50	- -	-	5 2 3 5 2 3	+ - + - + +	-	-	-	-	-	-	-	
3	10	10	H H	-	-	1 0 0 2 .75	1 1 1 1 1.00	- -	-	2 2 3 3 2 4	- - + - -	-	-	-	-	-	-	-	
4	0	10	- H	-	-	1 0 1 1 .75	1 0 1 1 .75	- -	-	3 2 3 3 2 3	- - - - -	-	-	-	-	-	-	-	
5	0	10	- H	-	-	1 0 0 1 .50	1 0 1 1 .75	- -	-	3 2 2 3 1 2	- - - - -	-	-	-	-	-	-	-	
6	0	10	- H	-	-	1 0 1 1 .75	1 0 1 1 .75	- -	-	2 1 2 3 2 3	- - - - -	-	-	-	-	-	-	-	
7	10	10	H H	-	-	0 0 0 2 .50	1 0 0 0 .25	- -	-	3 2 3 2 1 2	- - + - -	-	-	-	-	-	-	-	
8	20	20	H H	-	-	0 0 0 1 .25	1 0 1 1 .75	- -	-	3 2 2 3 2 2	- - - - -	-	-	-	-	-	-	-	
9	20	20	H H	-	-	0 0 0 2 .50	1 0 0 1 .50	- -	-	3 2 3 3 3 4	- - + - +	-	-	-	-	-	-	-	
10	10	- H	-	-	2	0 1 2 1.25	1 0 0 1 .50	- -	-	4 2 3 3 1 3	+ - + + - +	-	-	-	-	-	-	-	
11	-	20	- H	-	-	2 0 1 2 1.25	2 0 0 1 .75	- -	-	3 2 6 3 2 7	+ - + + - +	-	-	-	-	-	-	-	
12	30	10	H H	-	-	2 0 1 2 1.25	1 0 1 1 .75	- -	-	4 2 4 5 2 3	+ - + + -	-	-	-	-	-	-	-	
13	10	10	H H	-	-	2 0 1 2 1.25	1 0 1 2 1.00	- -	-	3 2 4 3 3 4	+ - + - -	-	-	-	-	-	-	-	
14	20	20	A H	+	+	2 0 1 1 1.00	2 1 1 2 1.50	- -	-	5 3 4 6 2 3	- - - + -	-	-	-	-	-	-	-	
15	10	0	H	-	-	1 0 0 2 .75	2 1 2 2 1.75	- -	-	3 2 3 3 3 3	- - - - +	-	-	-	-	-	-	-	
16	0	0	-	-	-	2 0 0 2 1.00	3 3 2 3 2.75	- -	-	3 2 3 3 3 3	+ - + - +	-	-	-	-	-	-	-	
17	0	0	-	-	-	1 1 1 2 1.25	2 2 2 3 2.25	- -	-	4 3 3 3 3 3	- - + - -	-	-	-	-	-	-	-	
18	10	0	A	-	+	-	2 1 2 2 1.75	2 0 2 2 1.50	- -	-	4 3 4 4 3 3	+ - + - +	-	-	-	-	-	-	-
19	10	10	A H	+	+	- 1 0 1 2 1.00	2 2 2 2 2.00	- -	-	3 2 4 3 2 5	- - - - - +	-	-	-	-	-	-	-	
20	MI	SS	I	N	6														
21	0	0	-	-	-	+ 1 1 2 2 1.50	1 1 1 1 1.00	- -	-	3 1 3 3 2 3	- - + - + +	-	-	-	-	-	-	-	
22	0	0	-	-	-	- 1 0 1 1 .75	1 1 1 1 1.00	- -	-	3 1 2 2 1 2	- - - - -	-	-	-	-	-	-	-	
23	10	0	H	-	-	+ 1 1 1 1 1.00	1 1 1 1 1.00	- 1	-	4 2 3 3 1 2	- - - - -	-	-	-	-	-	-	-	
24	10	10	H H	-	-	+ 2 1 2 2 1.75	1 0 1 1 .75	- 2	-	4 2 4 2 1 2	- - + + -	-	-	-	-	-	-	-	
25	20	10	H H	-	-	+ 2 1 2 2 1.75	1 2 1 1 1.25	1 2	-	5 2 3 2 1 2	+ - - - -	-	-	-	-	-	-	-	
26	10	10	H H	-	-	+ 2 1 1 1 1.25	1 1 1 1 1.00	- 1	-	3 2 4 2 1 3	+ - + - +	-	-	-	-	-	-	-	
27	10	0	H	-	-	- 2 0 1 1 1.00	2 1 0 1 1.00	- -	-	5 2 3 3 2 2	+ - + - +	-	-	-	-	-	-	-	
28	0	0	-	-	-	- 1 1 1 1 1.00	1 0 0 1 .50	- -	-	3 2 2 3 2 3	- - - - -	-	-	-	-	-	-	-	
29	0	10	- H	-	-	+ 2 1 1 2 1.50	1 0 0 1 .50	- -	-	3 2 4 3 2 3	- - + - +	-	-	-	-	-	-	-	
30	10	10	A H	+	+	- 2 1 1 1 1.25	2 0 1 2 1.25	- -	-	3 2 5 4 3 5	- - - + -	-	-	-	-	-	-	-	
31	10	0	A	-	+	+ 2 1 1 2 1.50	2 1 1 2 1.50	- -	-	4 2 5 5 3 4	+ - + - + +	-	-	-	-	-	-	-	
32	0	0	-	-	-	- 2 0 1 2 1.25	2 2 2 2 2.00	- -	-	3 2 3 3 2 3	+ - + - + +	-	-	-	-	-	-	-	

GI:1.06 PLI:1.15 CALCULUS INDEX:.5  
 H=Horizontal A=Angular +=yes -=no

NAME: Pender, Tina SSN: 269-66-2356  
RACE: Black SEX: Female PLACE OF ENLISTMENT: Ohio AGE: 24

61:.89 PLI:.92 CALCULUS INDEX:1.17  
H=Horizontal A=Angular +yes -no

NAME: Picard, Sandra SSN: 007-70-9132  
RACE: Caucasian SEX: Female PLACE OF ENLISTMENT: Maine AGE: 21

G1:1.5 PLI:1.78 CALCULUS INDEX: .33  
H=Horizontal A=Angular + =yes - =no

NAME: Reed, Darryl  
RACE: Black

SSN: 119-56-2869  
SEX: Male

PLACE OF ENLISTMENT: New York

AGE: 18

	B	L	TBL	F	C	X	C	6	P	C	I	M	P	D	P	D	B	F	B	L	O																								
	OF	OD	YOO	U	A	R	A		I	A	N	D	O	R	P	E	R	E	F	BLE	CT																								
	OR	NS	PNS	R	R	R	A		Y	U	DE	DE	OP	PC	RO	PT	IN	EE	AC	BLE	EE																								
	H	E	S	E	E	S	E		C	U	X	L	I	H	P	O	G	U	AL	U	LE																								
	E	N	E	E	S	E	E		U	S	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	SE																								
	T	E	N	E	E	S	E		S	U	U	U	U	U	U	U	U	U	U	U	LR																								
	M	I	D	M	I	F	L	D	T	M	I	F	L	D	M	I	F	L	D	M	LE																								
1	IMPACTED																				SE																								
2	10	-	H	--	-	+	-	2	0	0	2	1.00	2	2	2	2	2.00	-	-	4	4	3	3	3	4	+	-	-	-	-	-														
3	10	0	H	--	-	-	-	+	2	0	1	2	1.25	1	1	1	2	1.25	-	-	4	2	5	3	3	4	+	-	-	-	-	-													
4	0	0	-	-	-	-	-	-	2	0	0	2	1.00	1	0	1	1	.75	-	-	3	2	4	3	1	3	-	-	-	-	-	-													
5	0	0	-	-	-	-	-	-	2	0	0	1	.75	1	0	0	1	.50	-	-	3	2	3	4	2	2	-	-	-	-	-	-													
6	20	0	H	-	-	-	-	-	2	0	0	2	1.00	1	0	0	1	.50	-	-	8	2	3	8	5	4	+	-	-	-	-	-													
7	30	40	H	H	-	-	-	-	+	2	0	2	2	1.50	1	0	0	1	.50	-	-	I	4	3	8	4	5	7	+	-	-	-	-	-											
8	10	30	H	H	-	-	-	-	+	2	0	2	2	1.50	1	0	0	1	.50	-	-	I	3	3	9	3	5	6	+	-	-	-	-	-											
9	10	50	H	H	-	-	-	-	-	2	0	2	2	1.50	1	0	1	1	.75	-	-	I	4	3	10	3	5	8	+	-	-	-	-	-											
10	50	50	H	H	-	-	-	-	-	2	2	2	2	2.00	1	0	1	1	.75	-	-	I	8	5	9	8	4	9	+	-	-	-	-	-											
11	30	30	H	H	-	-	-	-	-	2	0	2	2	1.50	1	0	1	1	.75	-	-	10	5	5	8	5	3	+	-	-	-	-	-												
12	30	10	H	H	-	-	-	-	-	2	0	0	2	1.00	1	0	1	1	.75	-	-	4	2	5	3	2	4	+	-	-	-	-	-												
13	0	30	-	H	-	-	-	-	-	2	0	0	2	1.00	1	0	1	1	.75	-	-	5	3	4	3	2	4	+	-	-	-	-	-												
14	SEVERE	+																																											
15	0	-	-	-	-	-	-	-	-	2	0	0	2	1.00	2	2	1	2	1.75	-	-	8	3	4	4	3	3	+	-	-	-	-	-	-	-	-	-	-	-	-					
16	IMPACTED																																												
17	IMPACTED																																												
18	0	-	-	-	-	-	-	-	-	2	0	2	2	1.50	2	1	1	1	1.25	-	-	5	2	4	3	3	5	-	-	-	-	-	-	-	-	-	-	-	-	-					
19	0	20	-	A	+	-	-	-	-	2	0	2	2	1.50	1	0	2	2	1.25	-	-	4	2	5	3	5	4	-	-	-	-	-	-	-	-	-	-	-	-	-					
20	0	0	-	-	-	-	-	-	-	2	0	2	2	1.50	1	0	1	1	.75	-	-	4	2	4	3	3	5	-	-	-	-	-	-	-	-	-	-	-	-	-					
21	0	0	-	-	-	-	-	-	-	2	0	2	2	1.50	1	0	0	1	.50	-	-	4	2	4	3	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-					
22	30	0	H	-	-	-	-	-	-	2	0	1	2	1.25	1	0	0	1	.50	-	-	8	2	4	5	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-					
23	60	60	H	H	-	-	-	-	-	2	1	2	2	1.75	1	0	1	1	.75	-	-	11	10	5	7	9	5	6	+	-	-	-	-	-	-	-	-	-	-	-	-				
24	70	80	H	H	-	-	-	-	-	2	1	2	2	1.75	2	0	1	2	1.25	1	2	III	9	7	10	8	5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
25	70	50	H	H	-	-	-	-	-	2	1	2	2	1.75	1	0	2	1	1.00	1	2	III	10	5	8	10	5	7	+	-	-	-	-	-	-	-	-	-	-	-	-	-			
26	50	50	H	H	-	-	-	-	-	2	1	2	2	1.75	1	0	1	1	.75	-	-	11	8	5	7	6	5	7	+	-	-	-	-	-	-	-	-	-	-	-	-				
27	30	0	H	-	-	-	-	-	-	2	1	2	2	1.75	1	0	1	1	.75	1	1	-	8	5	3	7	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-				
28	0	0	-	-	-	-	-	-	-	2	0	2	2	1.50	1	0	0	1	.75	-	-	3	2	3	4	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
29	0	40	-	H	-	-	-	-	-	2	0	2	2	1.50	1	0	1	1	.75	-	-	3	2	6	3	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
30	MISSING																																												
31	0	-	-	-	-	-	-	-	-	1	1	1	1	1.00	1	1	1	1	1.00	-	-	3	2	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	IMPACTED																																												

GI:1.38 PLI:.88 CALCULUS INDEX:1.0  
H=Horizontal A=Angular +yes -no

NAME: Relaford, Warren		SSN: 258-13-4052		PLACE OF ENLISTMENT: Georgia		AGE: 19									
RACE: Black		SEX: Male													
T O H I E N T	P E R S O N S E E S	B L O O D P N S C A T E S	T B L Y U R A R Y A T I O N	C I X C A R Y U L U	C I X C A R Y U L U	G I N D E X C U L U	M O B I L I T Y	P D F O P T H I B I N G	F A C I A L H I N G	P D L O P T H I N G	D E P T H I N G	L I N G U A L I N G	B F A C I A L H I N G	B I L L E G U A L I N G	O I C H C T L E U R S A E L R
1	IMPACTED														
2	10 - A - - + -	1 1 1 1 1	1.00	1 1 1 1 1	1.00	- - -	- - -	4 4 3 5 5 4	- - - - -						
3	40 0 A - - + -	2 1 0 1	1.00	1 1 1 1 1	1.00	- - -	- - -	6 3 4 7 4 5	- - - + -						
4	10 0 H - - + +	2 0 1 2	1.25	1 0 1 1	.75	- - -	- - -	7 3 8 5 3 6	+ - + - -						
5	10 10 H H - - +	2 0 1 2	1.25	1 0 1 1	.75	- - -	- - -	4 2 7 2 3 6	- - - + -						
6	0 0 - - - - -	2 1 1 2	1.50	1 0 1 1	.75	- - -	- - -	3 2 4 3 2 4	- - - + -						
7	10 10 H H - - -	1 0 0 2	.75	1 0 0 1	.50	- - -	- - -	3 2 3 2 2 3	- - - + -						
8	0 10 - H - - -	0 0 0 1	.25	1 0 0 1	.50	- - -	- - -	2 3 3 3 3 2	- - - - -						
9	10 20 H H - + -	0 0 0 1	.25	1 0 0 1	.50	- - -	- - -	2 3 4 3 2 3	- - - - -						
10	30 10 H H - + -	1 0 0 1	.50	1 0 0 1	.50	- - -	- - -	6 3 3 2 2 3	- - - - -						
11	0 0 - - - - -	1 0 0 1	.50	1 0 0 1	.50	- - -	- - -	3 3 3 3 2 3	- - - - -						
12	0 0 - - - - -	1 0 1 1	.75	1 0 1 1	.75	- - -	- - -	3 2 3 3 2 3	- - - - -						
13	0 10 - H - - +	1 0 1 1	.75	1 1 1 1	1.00	- - -	- - -	5 3 5 4 2 5	- - - - -						
14	10 0 H - - + +	2 0 1 2	1.25	1 1 1 1	1.00	- - -	- - -	6 4 7 5 4 7	+ - + - -						
15	10 - H - - + -	2 0 0 1	.75	1 1 1 1	1.00	- - -	- - -	7 5 5 7 7 7	- - - + -						
16	IMPACTED														
17	IMPACTED														
18	0 - - - + - -	2 1 2 2	1.75	1 1 1 1	1.00	- - -	- - -	4 2 7 5 5 6	- - - + +						
19	40 0 A - - + + +	2 1 1 1	1.25	1 1 1 1	1.00	- - -	- - -	8 3 5 5 8 4	- - - - -						
20	0 0 - - - - -	2 0 0 2	1.00	1 0 0 1	.50	- - -	- - -	3 3 5 4 3 2	+ - + - -						
21	0 0 - - - - -	1 0 0 1	.50	1 0 1 1	.75	- - -	- - -	3 2 4 3 3 3	- - - - -						
22	0 0 - - - - -	1 0 0 1	.50	1 0 1 1	.75	- 1 -	- 2 1	3 3 2 4	- - - - -						
23	0 0 - - - - -	1 1 1 2	1.25	1 1 1 1	1.00	- 1 -	- 5 1 2 4 2 3	- - + - -							
24	30 20 H H - - -	2 1 0 1	1.00	1 1 1 1	1.00	- 1 -	- 5 2 5 4 1 3	- - + - -							
25	20 20 H H - - -	1 1 0 2	1.00	1 1 1 1	1.00	- 1 -	- 4 2 3 3 1 3	- - + - -							
26	0 10 - H - - -	1 1 0 1	.75	1 0 1 1	.75	- 1 -	- 3 2 3 3 1 2	- - - - -							
27	0 0 - - - - -	2 0 0 1	.75	1 0 1 1	.75	- 1 -	- 3 2 3 3 1 3	- - + - -							
28	0 0 - - - - -	1 1 0 2	1.00	1 0 0 1	.50	- - -	- 3 2 3 3 4 3	- - + - -							
29	0 0 - - - + +	2 0 0 1	.75	1 0 0 1	.50	- - -	- 4 2 5 3 5 7	+ - + - -							
30	20 0 A - - + + -	1 0 0 1	.50	1 1 1 1	1.00	- - -	- 6 3 5 3 5 5	- - - - -							
31	0 - - - + + -	1 0 0 1	.50	1 1 1 1	1.00	- - -	- 5 4 8 7 7 8	- - - - -							
32	IMPACTED														

GI:.87 PLI:.79 CALCULUS INDEX:.17  
 H=Horizontal A=Angular t=yes -no

NAME: Retland, David L. SSN: 381-80-5095  
 RACE: Black SEX: Male PLACE OF ENLISTMENT: Michigan AGE: 20

T O T H E N T	P E R C E N T	B L O O D S E E B S E C E N T	TBL YOO PMS CAT RIES H	F C A R A Y C U L U S	G I	P I	C A L C U L U S	I M O B I L I T Y	P R O B I T H A L	P R O P T H A L	D I N G U A L	S F A C I A L	B L I N G U A L	O I C N C T L E U R S F A E L R	
MID	MID	MID	MID	MID	MFLDT	MFLDT	FIL	MFD	MFD	MFD	MFD	MFD	MFD	MFD	MFD
1	0	-	-	-	1101	.75	2222	2.00	--	-	444	323	-	-	-
2	100	H	-	-	+2111	1.25	2122	1.75	--	-	434	333	+	-	-
3	9090	AA	+	-	+1121	1.50	1122	1.50	1	-	977	774	7	-	+
4	00	-	-	-	0001	.25	1001	.50	--	-	322	223	-	-	-
5	00	-	-	-	2001	.75	1001	.50	--	-	213	323	-	-	+
6	00	-	-	-	2000	.50	1011	.75	--	-	312	323	-	-	+
7	00	-	-	-	1001	.50	1001	.50	--	-	323	213	-	-	-
8	00	-	-	-	0001	.25	1001	.50	--	-	223	212	-	-	-
9	00	-	-	-	0001	.25	1001	.50	--	-	223	222	2	-	-
10	00	-	-	-	1000	.25	1001	.50	--	-	312	222	2	-	-
11	00	-	-	-	0000	0	1001	.50	--	-	322	222	2	-	-
12	00	-	-	-	0000	0	1001	.50	--	-	323	223	-	-	-
13	020	H	-	-	0000	0	1002	.75	--	-	324	323	-	-	-
14	9090	AA	+	-	+2112	1.50	1111	1.00	--	1	877	728	-	-	+
15	50	-	H	-	+2011	1.00	1112	1.25	--	-	533	343	3	-	-
16	-20	-	H	-	-1011	.75	2122	1.75	--	-	333	333	3	-	-
17	00	-	-	-	1101	.75	2022	1.50	--	-	322	322	2	-	-
18	MISSING														
19	MISSING														
20	00	-	-	-	0000	0	1011	.75	--	-	322	322	2	-	-
21	00	-	-	-	0000	0	1001	.50	--	-	323	223	3	-	-
22	00	-	-	-	0000	0	1001	.50	--	-	323	222	2	-	-
23	00	-	-	-	0000	0	1001	.50	--	-	323	223	-	-	-
24	00	-	-	-	0000	0	1001	.50	--	-	323	322	2	-	-
25	00	-	-	-	0000	0	1001	.50	--	-	323	322	2	-	-
26	00	-	-	-	0020	.50	1011	.75	--	-	323	323	3	-	+
27	00	-	-	-	0000	0	1001	.50	--	-	323	323	3	-	-
28	00	-	-	-	0000	0	1011	.75	--	-	323	323	3	-	-
29	010	-	H	-	-0000	0	1012	1.00	--	-	323	323	3	-	-
30	7090	AA	+	+	+2222	2.00	2122	1.75	-	III	787	777	7	+	+
31	MISSING														
32	00	-	-	-	2111	1.25	2122	2.00	--	-	333	332	3	+	-

GI:.47 PLI: .91 CALCULUS INDEX:.17  
 H=Horizontal A=Angular +=yes -=no

NAME: Sanders, Malachi      SSN: 158-62-2501  
RACE: Black      SEX: Male      PLACE OF ENLISTMENT: Pennsylvania      AGE: 19

GI:1.06 PLI:.85 CALCULUS INDEX:.33  
H=Horizontal A=Angular + =yes - =no

NAME: Sinclair, Deborah SSN: 226-96-9280  
RACE: Black SEX: Female PLACE OF ENLISTMENT: Virginia AGE: 28

61:.95 PLI:1.09 CALCULUS INDEX: .5  
H=Horizontal A=Angular +yes -no

NAME: Sonn, Byron      SSN: 434-19-6626  
 RACE: Black      SEX: Male      PLACE OF ENLISTMENT: Louisiana      AGE: 20

	P	C	M	P	P	D	B	O
T	A	OBILITY	ROBING	PTIAL	PTNGUAL	BLEEDING	FACIAL	CN
I	NDEX	Y	BBING	HAL	GUAL	EDING	BLEEDING	CT
	MID	MID	MID	MIFLDIT	MIFLDIT	MIFLD	MIFLD	MIFLD
1	IMPACTED							
2	0	- - - - -	2	1 0 2 1.25	2 2 1 2 1.75	1 - -	3 2 2 3 2 3 + - + - - -	
3	10	10 A H - - + -	2	1 1 2 1.50	2 2 1 2 1.75	1 - -	4 2 3 4 2 4 + - + - - +	
4	0	0 - - - + -	2	1 1 2 1.50	2 1 1 2 1.50	- - -	4 2 4 3 2 3 - - - + - + -	
5	40	10 A H - - + 1	0 0 1 .50	2 0 1 1 1.00	- - -	7 2 3 3 2 3 - - - - - - -		
6	0	10 - H - - - 1	0 1 1 .75	2 0 1 1 1.00	- - -	3 2 3 3 2 3 - - - - - - -		
7	20	10 H H - - + -	2 0 1 2 1.25	2 0 1 2 1.25	- - -	4 2 3 3 2 3 - - - + - + -		
8	30	20 H H - - + -	1 0 0 2 .75	2 0 1 2 1.25	1 - -	4 3 4 5 3 4 - - - - - + -		
9	30	30 H H - - + 2	0 1 2 1.25	2 0 1 2 1.25	1 - -	4 2 4 5 3 3 + - - - + -		
10	10	10 H H - - + 1	0 1 1 .75	2 0 1 2 1.25	1 - -	4 2 3 3 2 4 - - - - - - -		
11	0	0 - - - - 2	0 0 1 .75	2 0 1 2 1.25	- - -	3 2 5 3 2 4 + - - - - - - -		
12	10	20 H A - - + 1	0 0 1 .50	1 0 1 1 .75	- - -	5 2 6 4 2 5 - - - - - - -		
13	10	0 A - - + - 1	1 0 1 .75	1 2 1 2 1.50	2 - -	6 2 4 2 2 5 - - - - - - -		
14	30	- A - - + - 2	1 1 2 1.50	2 2 1 2 1.75	1 - -	5 2 4 5 2 5 + - + - + -		
15	0	- - - - + - 2	1 0 2 1.25	2 2 1 2 1.75	1 - -	5 3 3 5 3 3 + - + - + -		
16	IMPACTED							
17	IMPACTED							
18	0	- - - - + - 2	0 1 1 1.00	2 1 2 2 1.75	- - -	3 2 5 5 3 4 + - - - - -		
19	0	20 - A - - + - 2	0 1 2 1.25	2 1 2 2 1.75	- - -	3 2 4 5 3 5 + - + - - +		
20	0	0 - - - - + + 1	0 1 2 1.00	2 0 2 2 1.50	- 1 -	3 2 4 4 3 5 - - + - - -		
21	0	0 - - - - + + 1	0 1 2 1.00	2 0 2 2 1.50	- 1 -	3 2 3 3 3 5 - - + - - -		
22	0	0 - - - - + + 1	0 1 2 1.00	2 1 1 2 1.50	- 1 -	3 2 3 2 2 3 - - + - - -		
23	10	10 H H - - + + 1	1 1 1 1 1.00	2 2 2 2 2.00	1 2 -	3 2 3 2 2 2 - - - - - - -		
24	20	10 H H - - + + 1	0 1 1 .75	2 1 2 2 1.75	1 3 -	3 2 3 3 2 2 - - - - - - -		
25	10	20 H H - - + + 1	0 1 1 .75	2 1 2 2 1.75	1 3 -	3 2 3 3 2 2 - - - - - - -		
26	30	30 A A - - + + 1	0 1 1 .75	2 1 2 2 1.75	1 3 -	3 2 3 2 2 - - - - - - -		
27	0	0 - - - - + + 1	0 1 1 .75	2 1 2 2 1.75	- 1 -	3 1 2 2 2 3 - - - - - - -		
28	0	0 - - - - + + 1	0 1 1 .75	1 1 1 1 1.00	- - -	3 2 3 3 3 3 - - - - - - -		
29	0	0 - - - - + + 1	0 1 1 .75	2 0 2 2 1.50	- 1 -	4 2 3 3 2 5 - - - - - - -		
30	0	20 - A - - + + 2	0 1 1 1.00	2 1 2 2 1.75	- - -	3 2 5 5 3 7 + - + - - -		
31	10	- H - - - + - 1	0 2 2 1.25	2 1 2 2 1.75	- - -	4 2 5 3 3 5 - - + + - +		
32	IMPACTED							

GI:.93 PLI:1.5 CALCULUS INDEX:1.67  
 H=Horizontal A=Angular +=yes -=no

NAME: Stonewall, Jesse SSN: 348-58-9441  
RACE: Black SEX: Male PLACE OF ENLISTMENT: Illinois AGE: 22

61:.34 PLI:.07 CALCULUS INDEX:.67  
H=Horizontal A=Angular + = yes - = no

NAME: Taulbee, Sally    SSN: 400-13-5714  
 RACE: Caucasian    SEX: Female    PLACE OF ENLISTMENT: Kentucky    AGE: 19

	T	I	P	C	I	M	P	F	P	D	L	B	F	B	L	O																				
	E	O	Y	U	A	R	R	P	R	R	P	O	P	G	L	C																				
	E	N	S	P	N	S	A	E	O	H	T	E	O	H	L	N																				
	H	E	S	E	S	E	C	I	E	T	S	E	F	E	G	U																				
	E	N	T	E	N	T	S	E	N	T	S	E	F	E	G	U																				
	M	I	D	M	I	D	M	F	I	D	T	M	I	D	M	I																				
	M	I	D	M	I	D	M	F	I	D	T	M	I	D	M	I																				
1	IMPACTED																																			
2	50	0	A	-	+	-	2	0	0	1	.75	1	1	0	1	.75	-	-	1	1	3	3	2	2	+	-	+	-	-							
3	0	40	-	H	+	+	-	2	0	0	2	1.00	1	1	0	1	.75	1	-	-	2	5	6	3	2	4	-	-	-	+	-					
4	0	0	-	-	-	-	1	0	0	1	.50	1	0	0	1	.50	-	-	1	2	2	3	2	3	-	-	-	-	-							
5	20	0	A	-	+	-	1	0	0	2	.75	1	0	0	1	.50	-	-	2	2	3	3	2	3	-	-	-	+	-							
6	20	20	H	H	-	-	1	0	1	1	.75	1	0	0	1	.50	-	-	1	3	3	4	2	3	-	-	-	-	-							
7	40	30	H	H	-	+	-	2	1	1	2	1.50	1	0	1	1	.75	-	1	4	2	4	3	3	5	-	-	+	-	-						
8	10	40	A	H	-	-	-	1	0	0	2	.75	1	0	0	1	.50	1	-	-	2	1	3	2	2	5	-	-	+	-	-					
9	10	10	H	H	-	-	-	1	1	0	1	.75	1	0	0	1	.50	-	-	2	2	3	2	2	3	-	-	-	-	-						
10	0	10	-	H	-	+	-	1	1	0	1	.75	1	0	0	1	.50	-	-	4	2	3	3	2	2	-	-	-	-	-						
11	10	30	H	H	-	-	-	1	0	0	1	.50	1	0	0	1	.50	-	-	2	5	4	2	2	4	-	-	-	-	-						
12	30	0	H	-	+	-	-	1	0	0	1	.50	1	0	0	1	.50	-	-	5	2	3	5	2	3	-	-	-	-	-						
13	0	0	-	-	-	-	2	0	0	1	.75	1	0	0	1	.50	-	-	3	2	4	3	2	3	+	-	-	-	-							
14	10	40	H	H	+	+	-	2	0	0	1	.75	1	0	0	1	.50	1	-	-	4	2	6	3	2	4	+	-	-	-	-					
15	40	-	H	-	+	-	-	2	0	0	1	.75	1	0	0	1	.50	-	-	5	2	2	3	3	3	+	-	-	-	-						
16	IMPACTED																																			
17	20	-	H	-	+	-	-	0	1	1	1.00	1	1	1	1	1.00	-	-	3	3	2	4	3	3	-	-	+	-	-							
18	30	40	A	H	+	+	-	2	0	0	2	1.00	1	1	1	1	1.00	-	-	3	2	4	2	3	4	+	-	-	-	-						
19	MISSING																																			
20	0	10	-	H	-	-	-	2	0	1	1	1.00	1	0	1	1	.75	-	-	3	2	2	3	2	2	2	-	-	+	-	-					
21	0	0	-	-	-	-	-	1	0	0	1	.50	1	0	1	1	.75	-	-	3	2	3	3	2	3	-	-	-	-	-						
22	30	0	H	-	-	-	-	1	0	0	1	.50	1	0	0	1	.50	1	1	-	2	1	1	3	1	2	-	-	-	-	-					
23	10	20	H	H	-	-	-	1	0	1	1	.75	1	0	0	1	.50	-	1	-	2	1	2	3	2	2	-	-	-	-	-					
24	10	10	H	H	-	-	-	1	0	1	1	.75	1	0	0	1	.50	-	1	-	3	1	2	2	2	3	-	-	-	-	-					
25	20	10	H	H	-	-	-	2	1	1	1	1.25	1	1	1	1	1.00	1	1	-	3	2	2	2	2	2	+	-	-	-	-					
26	10	10	H	H	-	-	-	1	0	0	1	.50	1	0	1	1	.75	-	1	-	3	2	3	2	2	2	-	-	-	-	-					
27	10	0	H	-	-	-	-	1	0	0	1	.50	1	0	0	1	.50	-	1	-	3	2	3	2	2	2	-	-	-	-	-					
28	0	0	-	-	-	-	-	2	0	0	1	.75	1	0	0	1	.50	-	-	3	2	2	3	2	3	-	-	+	-	-						
29	0	10	-	H	-	+	-	2	0	0	2	1.00	1	0	1	1	.75	-	-	3	1	2	3	2	3	-	-	+	-	-						
30	MISSING																																			
31	0	0	-	-	+	-	-	2	2	2	2	2.00	1	1	1	1	1.00	-	-	2	3	6	3	2	6	+	+	+	-	-						
32	10	-	A	-	+	-	-	2	1	0	1	1.00	1	1	1	1	1.00	-	-	5	3	3	6	3	3	-	-	-	-	-						

GI:.83 PLI:.65 CALCULUS INDEX:.83  
 H=Horizontal A=Angular t=yes -no

NAME: Watson, Jeffrey  
RACE: Caucasian SEX: Male

SSN: 073-62-8137  
PLACE OF ENLISTMENT: New York AGE: 21

T O D T H H E N T	P E R C E S S E E S T	B L I C A T I O N	T B L F U R R C Y C A R A L U L S	X C X C A R A L U L S	6 I	P I	C A N D C E X I C U L S	M O B I L I T Y	P R O B T H I N G	F A C I A L	P R O B T H I N G	D L I N G	B F A C I A L	B L E E G U L I N G	O I C N C T L E U R S A E L R	
1 30	- H	- - -	2 2 1 2	1.75	2 2 2 2	2.00	- -	-	4 3 3	9 5 5	+ + + + - + -					
2 70	70 A	H + + -	2 2 1 2	1.75	1 1 1 1	1.00	1 -	I	6 3 6	7 3 9	+ + + + - + -					
3 40	80 H	H + + -	2 2 1 2	1.75	2 1 1 1	1.25	1 -	-	6 5 6	7 3 9	+ + + + - + -					
4 30	30 H	H - - -	2 2 1 2	1.75	1 1 1 2	1.25	- -	I	6 5 6	4 4 9	+ + + + - + -					
5 30	40 H	H - - -	2 1 1 2	1.50	2 0 1 1	1.00	- -	-	6 2 7	7 5 5	+ - + + - + -					
6 40	30 H	H - - -	2 2 1 2	1.75	2 0 1 2	1.25	- -	-	5 4 5	7 5 7	+ + + + - + -					
7 40	50 H	H - + -	2 2 1 2	1.75	2 1 1 2	1.50	- -	I	5 5 6	5 5 7	+ + + + - + -					
8 40	40 H	H - - -	2 1 1 2	1.50	2 1 1 2	1.50	- -	-	8 3 5	7 5 5	+ - + + - + -					
9 30	40 H	H - - -	2 0 1 2	1.25	2 1 1 2	1.50	- -	-	7 2 5	7 5 5	+ - + + - + -					
10 40	40 H	H - - -	2 1 1 2	1.50	2 1 1 1	1.25	- -	I	6 3 7	5 4 5	+ - + + - + -					
11 20	20 H	H - - -	2 1 1 2	1.50	1 0 0 1	.50	- -	-	8 2 7	6 5 7	+ - + + - + -					
12 30	30 H	H - - -	2 1 1 2	1.50	1 0 0 1	.50	- -	-	8 2 8	7 3 8	+ - + + - + -					
13 20	20 H	H - + -	2 1 1 2	1.50	1 0 0 1	.50	- -	I	8 5 8	7 5 6	+ - + + - + -					
14 30	50 H	H + + -	2 1 1 2	1.50	1 1 0 1	.75	- -	-	8 5 10	7 3 10	+ - + + - + -					
15 50	20 H	H + + -	2 2 1 2	1.75	2 2 0 2	1.50	1 -	I	9 3 7	7 3 4	+ - + + - + -					
16 IMPACTED																
17 20	20 H	H - + -	2 1 2 2	1.75	2 2 2 2	2.00	- -	-	5 5 4	5 3 5	+ - + + - + -					
18 40	40 H	A + + +	2 1 2 2	1.75	2 2 2 2	2.00	- -	I	6 2 5	5 3 5	+ - + + - + +					
19 30	40 H	A + + +	2 1 2 2	1.75	2 1 1 2	1.50	- -	-	7 2 6	7 2 7	+ - + + - + -					
20 30	30 H	H - - +	2 1 2 2	1.75	2 1 2 2	1.75	- -	-	6 2 8	7 5 6	+ - + + - + -					
21 20	30 H	H - - -	2 1 2 2	1.75	2 0 1 2	1.25	- -	-	6 2 6	7 5 6	+ - + + - + -					
22 30	20 H	H - - +	2 1 2 2	1.75	2 0 1 2	1.25	- 1	-	7 2 5	5 3 7	- - + + - + -					
23 30	30 H	H - - +	2 1 2 2	1.75	2 0 2 2	1.50	1 1 -	-	5 2 7	4 3 5	+ - + + - + -					
24 40	30 H	H - - +	2 1 2 2	1.75	2 0 2 2	1.50	1 1 -	-	5 2 5	5 4 4	+ - + + - + -					
25 40	40 H	H - - +	2 1 2 2	1.75	2 0 2 2	1.50	1 1 -	-	5 3 5	4 2 4	+ - + + - + -					
26 30	30 H	H - - -	2 2 2 2	2.00	2 0 2 2	1.50	1 1 -	-	6 3 5	3 2 3	+ - - + + + -					
27 20	30 H	H - - +	2 1 2 2	1.75	2 0 1 2	1.25	- 1	-	7 2 8	4 5 7	- - + + + + -					
28 30	30 H	H - - -	2 1 2 2	1.75	2 0 2 2	1.50	- -	-	5 2 5	5 5 7	+ - + + + + -					
29 20	30 H	A - - +	2 2 2 2	2.00	2 0 2 2	1.50	- -	-	6 5 7	7 3 7	+ + + + + + -					
30 20	30 H	H - + -	2 2 2 2	2.00	2 1 2 2	1.75	- -	-	5 2 8	5 4 7	+ + + + + + -					
31 40	50 H	A + + -	2 2 2 2	2.00	2 2 2 2	2.00	- - 1	-	8 7 8	5 4 7	+ + + + + + -					
32 10	- H	- + -	2 2 2 2	2.00	2 2 2 2	2.00	- - 1	-	5 5 5	5 3 5	+ + + + + + -					

GI: 1.72 PLI: 1.39 CALCULUS INDEX: .67  
H=Horizontal A=Angular + = yes - = no

NAME: Webster, Jeffrey G  
RACE: Black SEX: Male

SSN: 420-90-5965  
PLACE OF ENLISTMENT: Alabama

AGE: 20

P T O O H	B L O G Y O U P N S E E S	T B F U R C R A U R C I Y A U C U L U S	C I X C A R R A Y C A L C U L U S	6 I	P L I	I N D E X A	M O B I L I T	P R O B I N G	D E P T H	F A C I A L	P R O B I N G	D E P T H	L I N G U A L	B F A C I A L	I N G U A L	
PERCENT	BOOMES	TBL F U R C R A U R C I Y A U C U L U S	LOG YOU PNS EEES	6 I												
		ATION				MID	MIFILDIT	MIFILDIT	MIFILDIT	MIFILDIT	MIFILDIT	MIFILDIT	MIFILDIT	MIFILDIT	MIFILDIT	MIFILDIT
1	0	0	-	-	-	1211	1.25	3323	2.75	-	-	423	433	-	-	-
2	70	10	AH	+	-	2101	1.00	2213	2.00	1	-	723	723	-	-	-
3	MISSING															
4	0	0	-	-	-	2202	1.50	2223	2.25	-	-	323	222	2	+	-
5	0	0	-	-	-	2011	1.00	1111	1.00	-	-	324	334	-	-	-
6	0	0	-	-	-	2101	1.00	2112	1.50	-	-	322	323	-	-	-
7	0	10	-H	-	-	1102	1.00	2212	1.75	-	-	423	333	3	-	-
8	10	20	HA	-	-	1101	.75	2011	1.00	-	-	324	323	3	-	-
9	50	10	AH	-	-	2022	1.50	2011	1.00	-	1	733	712	+	-	+
10	10	50	HA	-	-	2101	1.00	2111	1.25	-	1	356	337	-	-	-
11	0	0	-	-	-	1001	.50	1111	1.00	-	-	323	322	2	-	-
12	0	0	-	-	-	1002	.75	1112	1.25	-	-	324	323	-	-	-
13	0	0	-	-	-	1212	1.50	2313	2.25	-	-	423	322	2	-	-
14	MISSING															
15	0	0	-	-	-	1202	1.25	3313	2.50	-	-	345	323	-	+	-
16	0	0	-	-	-	1211	1.25	3333	3.00	1	-	523	333	3	-	-
17	0	0	-	-	-	2111	1.25	3233	2.75	-	-	333	233	3	-	-
18	20	0	H	-	-	2011	1.00	3133	2.50	-	-	523	323	3	-	-
19	80	60	AA	-	-	2011	1.00	2023	1.75	-	1	937	554	+	-	-
20	0	10	-H	-	-	2011	1.00	2122	1.75	-	-	327	225	+	-	-
21	0	0	-	-	-	2021	1.25	2122	1.75	-	-	313	333	3	-	-
22	0	0	-	-	-	1011	.75	2112	1.50	2	-	313	222	2	-	-
23	50	10	H	H	-	-	2212	1.75	3212	2.00	321	323	322	2	-	-
24	90	90	H	H	-	-	3333	3.00	3333	3.00	3333	III	109	109	109	109
25	90	90	H	H	-	-	3333	3.00	3333	3.00	3333	III	109	109	109	109
26	80	60	H	H	-	-	2212	1.75	3313	2.50	33III	103	355	3	-	-
27	40	0	H	-	-	-	1111	1.00	1211	1.25	-	322	222	2	-	-
28	0	0	-	-	-	-	1101	.75	1011	.75	-	222	222	2	-	-
29	0	0	-	-	-	-	1001	.50	1112	1.25	-	323	223	3	-	-
30	MISSING															
31	0	0	-	-	-	2111	1.25	3233	2.75	-	-	323	333	3	-	-
32	0	0	-	-	-	1102	1.00	3233	2.75	-	-	323	333	3	-	-

GI:1.22 PLI:1.92 CALCULUS INDEX:1.33  
H=Horizontal A=Angular t=yes -=no

NAME: Wigfall, Earl B. SSN: 304-78-6659  
 RACE: Black SEX: Male PLACE OF ENLISTMENT: Indiana AGE: 21

	B	L	TBL	F	C	X	C	6	P	C	I	M	P	D	F	P	D	L	B	F	B	L	O	
	D	E	R	U	A	R	A		T	A	N	M	R	E	P	F	E	D	E	E	F	E	C	
	P	E	R	S	P	R	A		T	C	I	M	P	D	F	P	D	L	B	F	B	L	O	
1	IM	PACTED																						
2	20	-H	--	+ -	20	1	1	1.00	2	2	1	2	1.75	1	-	-	4	3	4	3	2	4	+ -	-
3	60	20	A	H	-	+ +	21	1	2	1.50	2	2	1	2	1.75	1	-	-	10	2	6	7	2	7
4	20	10	A	H	-	-	+ -	20	1	2	1.25	1	1	1	1	1.00	-	-	4	2	4	3	2	5
5	-	20	-H	--	-	-	-	20	1	2	1.25	1	0	1	1	.75	-	-	3	2	5	3	2	3
6	20	0	H	--	-	-	-	21	1	2	1.50	1	0	1	1	.75	-	-	5	2	3	6	2	4
7	80	20	A	H	-	-	-	20	2	2	1.50	1	0	1	1	.75	-	-	10	2	5	10	5	5
8	10	20	H	H	-	-	-	20	1	2	1.25	1	0	1	1	.75	-	-	3	2	4	3	2	2
9	30	10	A	H	-	-	-	20	2	2	1.50	1	0	1	1	.75	-	-	3	2	3	3	7	2
10	0	10	-H	--	-	-	-	20	1	1	1.00	1	0	1	1	.75	-	-	3	2	5	2	2	2
11	10	0	H	--	-	-	-	21	0	1	1.00	1	1	1	1	1.00	-	-	4	3	4	3	3	2
12	0	0	-	-	-	-	-	20	0	1	.75	1	1	1	1	1.00	-	-	3	2	3	3	2	3
13	0	20	-H	--	-	-	-	10	1	2	1.00	1	1	1	1	1.00	-	-	3	2	8	3	2	4
14	20	40	H	H	-	+ +	-	20	1	2	1.25	2	1	1	2	1.50	1	-	7	3	7	4	2	7
15	30	-	H	--	-	-	-	20	1	1	1.00	2	2	1	2	1.75	1	-	7	2	3	4	2	3
16	IM	PACTED																						
17	IM	PACTED																						
18	20	-H	--	+ +	-	20	1	2	1.25	1	0	2	1	1.00	-	-	3	2	7	5	3	5	-	-
19	20	10	H	H	-	+ +	21	1	2	2	1.75	1	1	1	1	1.00	-	-	6	2	6	5	3	5
20	20	20	H	H	-	+ +	21	1	1	1.25	2	1	2	2	1.75	-	-	5	2	6	4	2	5	
21	60	70	A	A	-	-	+ +	3	3	1	3	2.50	2	2	1	2	1.75	1	-	5	3	6	3	3
22	10	10	H	H	-	-	+ +	21	1	3	1.75	1	1	1	1	1.00	-	-	5	2	5	2	3	3
23	20	10	H	H	-	-	+ +	21	1	2	1.50	2	1	1	2	1.50	-	-	5	2	5	3	2	2
24	10	20	H	A	-	-	+ +	21	1	2	1.50	1	1	1	1	1.00	-	-	4	2	5	3	2	3
25	10	20	H	H	-	-	+ +	20	1	2	1.25	1	1	1	1	1.00	-	-	4	2	5	3	2	3
26	20	10	H	H	-	-	+ +	21	1	2	1.50	1	1	1	1	1.00	-	-	5	2	4	3	2	3
27	10	10	H	H	-	-	+ +	21	1	2	1.50	1	1	1	1	1.00	-	-	2	4	3	3	2	3
28	20	10	H	H	-	-	+ +	21	1	2	1.50	1	1	1	1	1.00	-	-	4	2	5	3	2	3
29	0	20	-H	--	-	+ +	21	1	2	1.50	1	1	1	1	1.00	-	-	4	2	5	3	2	3	
30	30	30	A	H	-	+ +	+ +	21	1	2	1.50	2	1	1	2	1.50	-	-	5	2	5	3	2	5
31	30	-	A	--	-	-	-	21	1	2	1.50	1	2	1	1	1.75	-	-	7	2	7	7	3	6
32	IM	PACTED																						

GI:1.32 PLI:1.16 CALCULUS INDEX:.83  
 H=Horizontal A=Angular +yes -no

NAME: Wright, Michael  
RACE: Black

SSN: 257-19-4043  
PLACE OF ENLISTMENT: Georgia

AGE: 22

T	P	C	I	M	P	D	F	P	D	B	L	O	
IP	BL	TBL	FC	X	INDEX	MOB	PRO	DEP	PTH	FACIAL	BLEEDING	BLINDING	
OE	OD	YOD	UAR	RA	CUX	ILIT	PHAL	BBING	HTH	UR	SP	LE	
H	E	R	N	S	S	U	U	G	H	U	U	U	
ENT	SES	SES	SES	SES	SES	SES	SES	SES	SES	SES	SES	SES	
MID	MID	MID	MFLD	DT	MFLD	DT	FIL	MFD	MFD	MFD	MFD	MFD	
1	IMPACTED												
2	10	0	H	- - - - -	2	0	1	.75	2	1	1	2	
3	0	30	A	- - + +	2	1	0	2	1.25	2	1	2	2
4	0	0	- - - - -	-	2	0	0	2	1.00	2	0	2	2
5	0	0	- - - - -	-	2	0	0	2	1.00	1	1	1	1
6	0	- - - - -	-	-	1	1	0	2	1.00	1	1	0	1
7	40	10	H	H	- - - - -	1	1	0	2	1.00	1	2	1
8	30	50	H	H	- - + +	2	1	0	2	1.25	1	0	1
9	60	40	H	H	- - - - -	2	1	1	2	1.50	1	0	1
10	40	10	H	H	- - - - -	2	2	1	2	1.50	2	0	1
11	10	0	H	- - - - -	2	1	0	2	1.25	2	1	2	1
12	0	0	- - - - -	+ +	2	0	0	2	1.00	1	1	1	1
13	0	0	- - - - -	-	2	1	0	2	1.25	1	1	1	2
14	10	20	-	H	- - + +	2	0	2	2	1.50	2	2	2
15	0	- - - - -	-	-	2	1	2	2	1.25	2	1	2	1
16	MISSING												
17	MISSING												
18	0	0	- - - - -	+ +	2	1	2	2	1.75	2	1	2	2
19	0	10	-	H	- - - - -	2	1	2	2	1.75	2	1	2
20	0	10	-	H	- - - - -	2	0	2	2	1.50	1	0	1
21	0	10	-	H	- - - - -	2	0	2	2	1.50	1	1	1
22	0	0	- - - - -	-	1	0	1	2	1.00	1	1	1	1
23	0	0	- - - - -	-	2	2	1	1	1.50	1	1	1	1
24	50	30	H	A	- - + +	2	2	2	2	2.00	3	3	2
25	20	0	H	- - + +	-	2	2	1	1	1.50	3	3	2
26	0	0	- - - - -	-	1	1	0	1	.75	1	0	1	.75
27	0	0	- - - - -	-	1	0	1	1	.75	1	1	1	1
28	0	0	- - - - -	-	1	0	2	1	1.00	1	1	1	1
29	0	0	- - - - -	-	1	0	2	1	1.00	1	1	1	1
30	30	10	A	H	- - - - -	1	0	1	1	.75	2	1	2
31	MISSING												
32	0	- - - - -	-	-	2	1	1	1	1.25	2	2	2	2.00

61:1.23 PLI:1.38 CALCULUS INDEX:1.17  
H=Horizontal A=Angular + =yes - =no

LITERATURE CITED

1. Allen, A.L. and Brady, J.M. 1978. Periodontosis: a case report with scanning electron microscope observations. *J. Periodontol.*, 49: 415.
2. American Academy of Periodontology. 1950. Report of the 1949 nomenclative committee of the American Academy of Periodontology. *J. Periodontol.*, 21: 40.
3. Baer, P.N. 1971. The case for periodontosis as a clinical entity. *J. Periodontol.*, 42: 516.
4. Baer, P.N. and Benjamin, S.D. 1974. Periodontal disease in children and adolescents. Philadelphia, Lippincott. pp. 139-168.
5. Baer, P.N. and Kaslick, R.S. 1978. Periodontosis: a confusion of terminology. *J. Periodontol.*, 49: 153.
6. Barnett, M.L., Baker, R.L. and Yancey, J.M. 1982. The prevalence of juvenile periodontitis ("periodontosis") in a dental school patient population. *J. Dent. Res.*, 61: 391-392.
7. Basu, M.K. and Dutta, A.N. 1963. Report on "prevalence of periodontal disease in the adult population of Calcutta," by Ramfjord's technique. *J. All-India Dent. Assoc.*, 35: 187.
8. Belting, C.M., Masslerm, M. and Schour, I. 1953. Prevalence and incidence of alveolar bone disease in men. *J. Am. Dent. Assoc.*, 47: 190-197.
9. Benjamin, S.D. and Baer, P.N. 1967. Familial patterns of advanced alveolar bone loss in adolescence (periodontosis). *Periodontics*, 5: 82.
10. Blankenstein, R., Murray, J.J. and Lind, O.P. 1978. Prevalence of chronic periodontitis in 13-15 year old children. A radiographic study. *J. Clin. Periodontol.*, 4: 285-292.
11. Box, H.K. 1972. Studies in periodontal pathology. *Annals of Dentistry*, 31: 24.
12. Burmeister, J.A., Best, A.M., Palcanis, K.G., Caine, F.A. and Ranney, R.R. 1984. Localized juvenile periodontitis and generalized severe periodontitis: clinical findings. *J. Clin. Periodontol.*, 11: 181.

13. Butler, J.H. 1969. A familial pattern of juvenile periodontitis (periodontosis). *J. Periodontol.*, 40: 115.
14. Chaput, A., Held, A.J. and Palfer-Sollier, M. 1967. Paris, Flammarion. (*Collection Medico-Chirurgicale A Revision Annuale*). *Stomatologie*.
15. Cogen, R.B., Al-Joburi, W., Caufield, P.W., Stanley, H.P., Donaldson, K. 1984. Periodontal disease in healthy children: two clinical reports. *Pediatr. Dent.*, 6: 41.
16. Davies, E.E., Meisler, F. Jr. and Tennyson, L.J. 1977. Panoramic versus periapical surveys. A comparison of findings on freshmen dental students. *Dent. Radiography and Photography*, 50: 41.
17. Dawson, C.E. 1948. Dental defects and periodontal disease in Egypt 1946-1947. *J. Dent. Res.*, 27: 512.
18. Ebersole, J.L., Frey, D.E., Taubman, M.A., Smith, D.J. and Genco, R.J. 1980a. Serum antibody responses to A. actinomycetemcomitans (Y4) in periodontal disease. Annual Meeting Am. Assoc. Dent. Res. Abstract, 249.
19. Ebersole, J.L., Frey, D.E., Taubman, M.A., Smith, D.J., Genco, R.J. and Hammond, B.F. 1980b. Antibody response to antigens from A. actinomycetemcomitans (Y4): relationship to localized juvenile periodontitis (LJP). Annual Meeting Am. Assoc. Dent. Res. Abstract, 255.
20. Ebersole, J.L., Taubman, M.A., Smith, D.J., Genco, R.J. and Frey, D.E. 1982. Human immune responses to oral microorganisms. I. Association of localized juvenile periodontitis (LJP) with serum antibody responses to Actinobacillus actinomycetemcomitans. *Clin. Exp. Immun.*, 47: 43.
21. Emslie, R.D. 1966. A dental health survey in the Republic of the Sudan. *Br. Dent. J.*, 120: 167.
22. Evian, C.I., Amsterdam. M. and Rosenberg, E.S. 1982. Juvenile periodontitis - Healing following therapy to control inflammatory and traumatic etiologic components of the disease. *J. Clin. Periodontol.*, 9: 1.

23. Fine, D.H., Goldberg, D. and Karol, R. 1984. Caries levels in patients with juvenile periodontitis. *J. Periodontol.*, 55: 242.
24. Fourel, J. 1972. Periodontosis: a periodontal syndrome. *J. Periodontol.*, 43: 240.
25. Fourel, J. 1974. Periodontosis, juvenile periodontitis or Gottlieb syndrome? Report of 4 cases. *J. Periodontol.*, 45: 234.
26. Gebhard, J.D., Newman, J.T., Mathews, J.L., Hurt, W.C. and Stone, M.J. 1982. Immunopathology of periodontal disease. II. Immunofluorescent studies on the localized immune response in periodontitis and juvenile periodontitis. *J. Periodontol.*; 53: 239.
27. Genco, R.J., Taichman, P.A. and Sadowski, C.A. 1980. Precipitating antibodies to Actinobacillus actinomycetemcomitans in localized juvenile periodontitis. Annual Meeting Am. Assoc. Dent. Res. Abstract, 246.
28. Gillett, R. and Johnson, H.W. 1982. Bacterial invasion of the periodontium in a case of juvenile periodontitis. *J. Clin. Periodontol.*, 9: 93.
29. Gjermo, P., Bellini, H.T., Santos, J.P., Martins, J.G. and Ferracyoli, J.R. 1984. Prevalence of bone loss in a group of Brazilian teenagers assessed on bite-wing radiographs. *J. Clin. Periodontol.*, 11: 104.
30. Glauser, R.O. and Humphreys, P.K. 1971. Unpublished data.
31. Gottlieb, B. 1923. Die diffuse atrophie des alveolarknochens. Weitere Beitrage Zur Kenntnis des alveolarschurindes und dessen. Wiedergutmachung durch zementwachstum. *Zeitchriftfur Stomatologie*, 21: 195.
32. Gottlieb, B. 1928. The formation of the pocket. Diffuse atrophy of alveolar bone. *J. Am. Dent. Assoc.*, 15: 462.
33. Grant, D., Stern, I.B. and Everett, F.G. 1963. Orban's periodontics, ed 2. St. Louis, The C.V. Mosby Company, pp. 160-192.
34. Greene, J.C. and Vermillion, J.R. 1960. The oral hygiene index: a method of classifying oral hygiene status. *J. Am. Dent. Assoc.*, 61: 171.

35. Greenstein, G. 1985. Changing periodontal concepts. Part I. Etiology and diagnosis. Compendium of Continuing Education in Dentistry, 6: 242.
36. Hansen, B.F., Gjermo, P. and Bergwitz-Larsen, K.R. 1984. Periodontal bone loss in 15 year old Norwegians. J. Clin. Periodontol., 11: 125.
37. Harvey, R.F. 1981a. Periodontosis. Part II. Diagnosis and classification. J. Can. Dent. Assoc., 6: 385.
38. Harvey, R.F., Jones, W.B., Chan, E.C.S., DeVries, J. and Wilika, H. 1981b. Periodontosis. Part III. Barbados study. J. Can. Dent. Assoc., 7: 449.
39. Hew, E. and Killoy, W. 1979. The incidence of periodontosis in a young military population. Unpublished Study.
40. Hoge, W.H. and Kirkham, D.B. 1981. Periodontosis: treatment results in 15-year-old girl. J. Am. Dent. Assoc., 101: 795.
41. Hoover, J.N., Ellegaard and Attstrom, R. 1981. Radiographic and clinical examination of periodontal status of first molar in 15-16-year-old Danish schoolchildren. Scand. J. Dent. Res., 89: 260.
42. Hormand, J. and Frandsen, A. 1979. Juvenile periodontitis: localization of bone loss in relation to age, sex, and teeth. J. Clin. Periodontol., 6: 407.
43. Jaffin, R.A., Greenstein, G. and Berman, C.L. 1984. Treatment of juvenile periodontitis patients by control of infection and inflammation. J. Periodontol., 55: 261.
44. Johnson, R.J., Mathews, J.L., Stone, M.J., Hurt, W.C. and Newman, J.T. 1980. Immunopathology of periodontal disease. I. Immunologic profiles in periodontitis and juvenile periodontitis. J. Periodontol., 51: 705.
45. Kaslick, R.S. and Chasens, A.I. 1968. Periodontosis with periodontitis: a study involving young adult males. 1. Review of the literature and incidence in a military population. 2. Clinical, medical, and histopathologic studies. Oral Surg., 23: 305.
46. Lacy, E.D. and Brasher, W.T. 1977. Periodontosis: incidence and findings in a military population. J. Oregon Dent. Assoc., 46: 4.

47. Lavine, W.S., Maderazo, E.G., Stolman, J., Ward, P.A., Cogen, R.B., Greenblatt, I. and Robertson, P.B. 1979. Impaired neutrophil chemotaxis in patients with juvenile and rapidly progressing periodontitis. *J. Periodont. Res.*, 14: 10.
48. Liljenberg, B. and Lindhe, J. 1980. Juvenile periodontitis. Some microbiological, histopathological and clinical characteristics. *J. Clin. Periodontol.*, 7: 48.
49. Lindhe, J. 1982. Treatment of localized juvenile periodontitis, in Host Parasite Interactions in Periodontal Diseases. Eds. Genco, R.J. and Mergenhagen, S.E., pp 382-394.
50. Lindhe, J. and Liljenberg, B. 1984. Treatment of localized juvenile periodontitis. Results after 5 years. *J. Clin. Periodontol.*, 11: 399.
51. Lindskog, S. and Blomlof, C. 1983. Cementum hypoplasia in teeth affected by juvenile periodontitis. *J. Clin. Periodontol.*, 10: 443.
52. Listgarten, M.A. 1976. Structure of the microbial flora associated with periodontal health and disease in man. *J. Periodontol.*, 47: 1.
53. Listgarten, M.A., Lai, C.H. and Evian, C.I. 1981. Comparative antibody titers to Actinobacillus actinomycetemcomitans in juvenile periodontitis, chronic periodontitis and periodontally healthy subjects. *J. Clin. Periodontol.*, 8: 155.
54. Loe, H. and Silness, J. 1963. Periodontal disease in pregnancy. I. Prevalence and severity. *Acta Odontol Scand.*, 21: 533.
55. Loe, H., Anerud, A., Boysen, H. and Smith, M. 1978. The natural history of periodontal disease in man. The rate of periodontal destruction before 40 years of age. *J. Periodontol.*, 49: 607-620.
56. MacGregor, I.D.M. 1980. Radiographic survey of periodontal disease in 264 adolescent schoolboys in Lagos, Nigeria. *Community Dent. Oral Epidemiol.*, 8: 56.
57. Manouchehr-Pour, M. and Bissada, N.F. 1979. Juvenile periodontitis (periodontosis): a review of the literature. *J. Western Soc. Periodontol.*, 27: 86.

58. Manson, J.D. and Lehner, T. 1974. Clinical features of juvenile periodontitis (periodontosis). *J. Periodontol.*, 45: 636.
59. Manson, J.D. 1977. Juvenile periodontitis (periodontosis). *Int. Dent. J.*, 27: 114-118.
60. Marshall-Day, C.D. and Shourie, K.L. 1949. A roentgenographic survey of periodontal disease in India. *J. Am. Dent. Assoc.*, 39: 572.
61. Marshall-Day, C.D., Stephens, R.G. and Quigley, L.F., Jr. 1955. Periodontal disease: prevalence and incidence. *J. Periodontol.*, 26: 185.
62. Melnick, M., Shields, E.D. and Bixler, D. 1976. Periodontosis: a phenotypic and genetic analysis. *Oral Surg.*, 42: 32.
63. Miglani, D.C. and Sharma, O.P. 1965. Report of the enquiry "incidence of acute necrotizing ulcerative gingivitis and periodontosis" among cases seen at the government hospital Madras. *J. All-India Dent. Assoc.*, 37: 183.
64. Miller, S.C., Wolf, W. and Seidler, B.B. 1941. Systemic aspects of precocious advanced alveolar bone destruction. *J. Dent. Res.*, 20: 386.
65. Miller, S.C. 1943. Textbooks of Periodontia. Philadelphia, Blakiston.
66. Moore, W.E.C., Holdeman, L.V., Simbert, R.M., Hash, D.E., Burmeister, J.A. and Ranney, R.R. 1982. Bacteriology of severe periodontitis in young adult humans. *Inf. Immun.*, 38: 1137.
67. Mouton, C., Hammond, P.G., Slots, J. and Genco, R.J. 1981. Serum antibodies to oral Bacteroides asaccharolyticus (Bacteroides gingivalis): relationship to age and periodontal disease. *Inf. Immun.*, 31: 182.
68. Muhlemann, H.R. and Mazor, Z.S. 1958. Gingivitis in Zurich school children. *Helv. Odontol. Acta*, 2: 3.
69. Murray, P.A. and Genco, R.J. 1980. Serum and gingival fluid antibodies to Actinobacillus actinomycetemcomitans in localized juvenile periodontitis. Annual Meeting Am. Assoc. Dent. Res. Abstract, #245.

70. Newman, M.G. 1976. Periodontosis. J. Western Soc. Periodontol., 24: 5.
71. Newman, M.G., Socransky, S.S., Savitt, E.D., Propas, D.A. and Crawford, A. 1976. Studies of the microbiology of periodontosis. J. Periodontol., 47: 373.
72. Newman, M.G. and Socransky, S.S. 1977. Predominant cultivable microbiota in periodontosis. J. Periodontol. Res., 12: 120.
73. Newman, M.G. 1981. Localized juvenile periodontitis (periodontosis). Pediatr. Dent., Special Issue, 3: 121-126.
74. Orban, B. and Weinmann, J.P. 1942. Diffuse atrophy of the alveolar bone (periodontosis). J. Periodontol., 13: 31.
75. Page, R.C. and Schroeder, H.E. 1982. Periodontitis in Man and other Animals. Baxil, S. Karger. pp. 1-320.
76. Page, R.C., Altman, L.C., Ebersole, J.L., et al. 1983. Rapidly progressive periodontitis: a distinct clinical condition. J. Periodontol., 54: 197.
77. Popper, H.A. 1981. Periodontosis case, analysis and treatment. Int. J. Periodontol. Res. Dent., 3: 41.
78. Prichard, J.F. 1965. Advanced Periodontal Disease: Surgical and Prosthetic Management. Philadelphia, Saunders. pp. 40-50.
79. Ramfjord, S.P. 1961. The periodontal status of boys 11 to 17 years old in Bombay, India. J. Periodontol., 32: 237.
80. Ranney, R.R., Debski, B.F. and Tew, J.G. 1981a. Pathogenesis of gingivitis and periodontal disease in children and young adults. Pediatr. Dent., Special Issue, 3: 89.
81. Ranney, R.R., Ruddy, S., Tew, J.G., Welshimer, H.J., Palcanis, K.G. and Segreti, A. 1981b. Immunological studies of young adults with severe periodontitis. I. Medical evaluation and humoral factors. J. Periodont. Res., 16: 390.
82. Rao, S.S. and Tewani, S.V. 1968. Prevalence of periodontosis among Indians. J. Periodontol., 39: 27.

83. Russell, A.L. 1957. Some epidemiological characteristics of periodontal disease in a series of urban populations. *J. Periodontol.*, 28: 286.
84. Russell, A.L. 1971. The prevalence of periodontal disease in different populations during the circumpubertal period. *J. Periodontol.*, 42: 508-512.
85. Russell, C.C. 1967. Epidemiology of periodontal disease. *Int. Dent. J.*, 17: 282.
86. Savitt, E.D. and Socransky, S.S. 1984. Distribution of certain subgingival microbial species in selected periodontal conditions. *J. Periodont. Res.*, 19: 111.
87. Saxen, L. 1980a. Juvenile periodontitis. *J. Clin. Periodontol.*, 7: 1.
88. Saxen, L. 1980b. Prevalence of juvenile periodontitis in Finland. *J. Clin. Periodontol.*, 7: 177.
89. Saxen, L. and Murtomaa, H. 1985. Age related expression of juvenile periodontitis. *J. Clin. Periodontol.*, 12: 21-26.
90. Schei, O., Waerhaug, J., Lovdal, A. and Arno, A. 1959. Alveolar bone loss as related to oral hygiene and age. *J. Periodontol.*, 30: 7-16.
91. Seidler, B., Miller, S. and Wolf, W. 1950. Systemic aspects of precocious advanced alveolar bone destruction: preliminary report. *J. Am. Dent. Assoc.*, 40: 49.
92. Silness, P. and Loe, H. 1964. Periodontal disease in pregnancy. *Acta Odontol. Scand.*, 22: 121.
93. Slots, J. 1976. Predominant cultivable organisms in juvenile periodontitis. *Scand. J. Dent. Res.*, 84: 1.
95. Sugarman, M.M. and Jobbins, P.M. and Genco, R.J. 1980. Juvenile periodontitis: a clinical entity and its responsibility. *J. Periodontol.*, 51: 397.

96. Tanner, A.C.R., Hoffer, C., Bratthall, G.T., Visconti, R.A. and Socransky, S.S. 1979. A study of the bacteria associated with advancing periodontitis in man. *J. Clin. Periodontol.*, 6: 278.
97. Tenenbaum, B., Karshan, M., Ziskin, D. and Nahoum, H.I. 1950. Clinical and microscopic study of the gingivae in periodontosis. *J. Am. Dent. Assoc.*, 40: 302.
98. Thoma, K.H. and Goldman, H.M. 1940. Wandering and elongation of the teeth, and pocket formation in paradontosis. *J. Am. Dent. Assoc.*, 27: 335.
99. Vandesteene, G.E., Altman, L.C. and Page, R.C. 1981. Peripheral blood leukocyte abnormalities and periodontal disease: a family study. *J. Periodontol.*, 52: 174.
100. Vandesteene, G.E., Williams, B.L., Ebersole, J.L., Altman, L.C. and Page, R.C. 1984. Clinical, microbiological and immunological studies of a family with a high prevalence of early-onset periodontitis. *J. Periodontol.*, 55: 159.
101. Van Dyke, T.E., Horoszewicz, H.V., Cianciola, L.J. and Genco, R.J. 1980. Neutrophil chemotaxis dysfunction in human periodontitis. *Inf. Immun.*, 27: 124.
102. Vincent, J., Suzuki, J. and Falkner, W., Jr. 1983. Serum antibody reactive with microorganisms implicated in localized and generalized juvenile periodontitis. Annual Meeting Am. Assoc. Dent. Res., Abstract #938.
103. Waerhaug, J. 1967. Prevalence of periodontal disease in Ceylon, association with age, sex, oral hygiene, socioeconomic factors, vitamin deficiencies, malnutrition, betel or tobacco consumption and ethnic group: final report. *Acta Odontol. Scand.*, 25: 205.
104. Waerhaug, J. 1976. Subgingival plaque and loss of attachment in periodontosis as observed in autopsy material. *J. Periodontol.*, 47: 636.
105. Waerhaug, J. 1977a. Plaque control in the treatment of juvenile periodontitis. *J. Clin. Periodontol.*, 4: 29.
106. Waerhaug, J. 1977b. Subgingival plaque and loss of attachment in periodontosis as evaluated on extracted teeth. *J. Periodontol.*, 48: 125.

107. Waldrop, T.C., Mackler, B.F., Schur, P. and Killoy, W. 1981. Immunologic study of human periodontosis (juvenile periodontitis). *J. Periodontol.*, 52: 8.
108. Waldrop, T.C. 1984. Localized juvenile periodontitis. Unpublished review prepared for annual meeting of the American Academy of Periodontology.
109. Wannenmacher, E. 1938. Umschau auf dem gebiet der parodontose. Zentralblatt Jur Die Gesamte Zahn, Mund-und Kuferheilkunde. 3: 81.
110. Yount, J.G. and Belting, C.M. 1956. Periodontosis - a review of the literature. *J. Periodontol.*, 27: 149.
111. Zambon, J.J., DeLuca, C., Slots, J. and Genco, R.J. 1983. Studies of leukotoxin from Actinobacillus actinomycetemcomitans using the promyelocytic HL-60 cell line. *Inf. Immun.*, 40: 205.

VITA

Robert Bousquet [REDACTED]

[PII Redacted]

[REDACTED] enlisted in the Air Force in June 1967. He attended college at Minot State College, Minot, North Dakota; University of West Florida, Pensacola, Florida and Okaloosa Walton Jr. College, Niceville, Florida. He received an Associate of Arts degree in December 1973 from Okaloosa Walton Jr. College. He attended the University of Florida, College of Dentistry, beginning in September 1974, receiving the degree of Doctor of Dental Medicine in December 1977. Following graduation, he was assigned to Travis Air Force Base, Fairfield, California, where he served as a general dentist and shortly thereafter, in June 1978, began a one-year General Dentistry Residency. The residency was completed in June 1979, and he was assigned to Sembach Air Base, Sembach, Germany, where again he served as a general dentist with advanced training. In July 1982, he enrolled in the Basic Science portion of the Periodontic Post-Doctoral Program at the University of Texas Health Science Center at San Antonio (UTHSC-SA), in conjunction with the Wilford Hall United States Air Force Medical Center Graduate Periodontics Residency Program. He was admitted to candidacy for the Master of

Science degree at the UTHSC-SA Graduate School in April 1984.

He was married to Sandra L. [REDACTED] on June 21, 1969. They have one daughter, Jennifer Lynn, [REDACTED]. His parents, Louis A. Bousquet and Lucille R. Bousquet, currently reside in Wareham, Massachusetts.